The OIL WEEKLY
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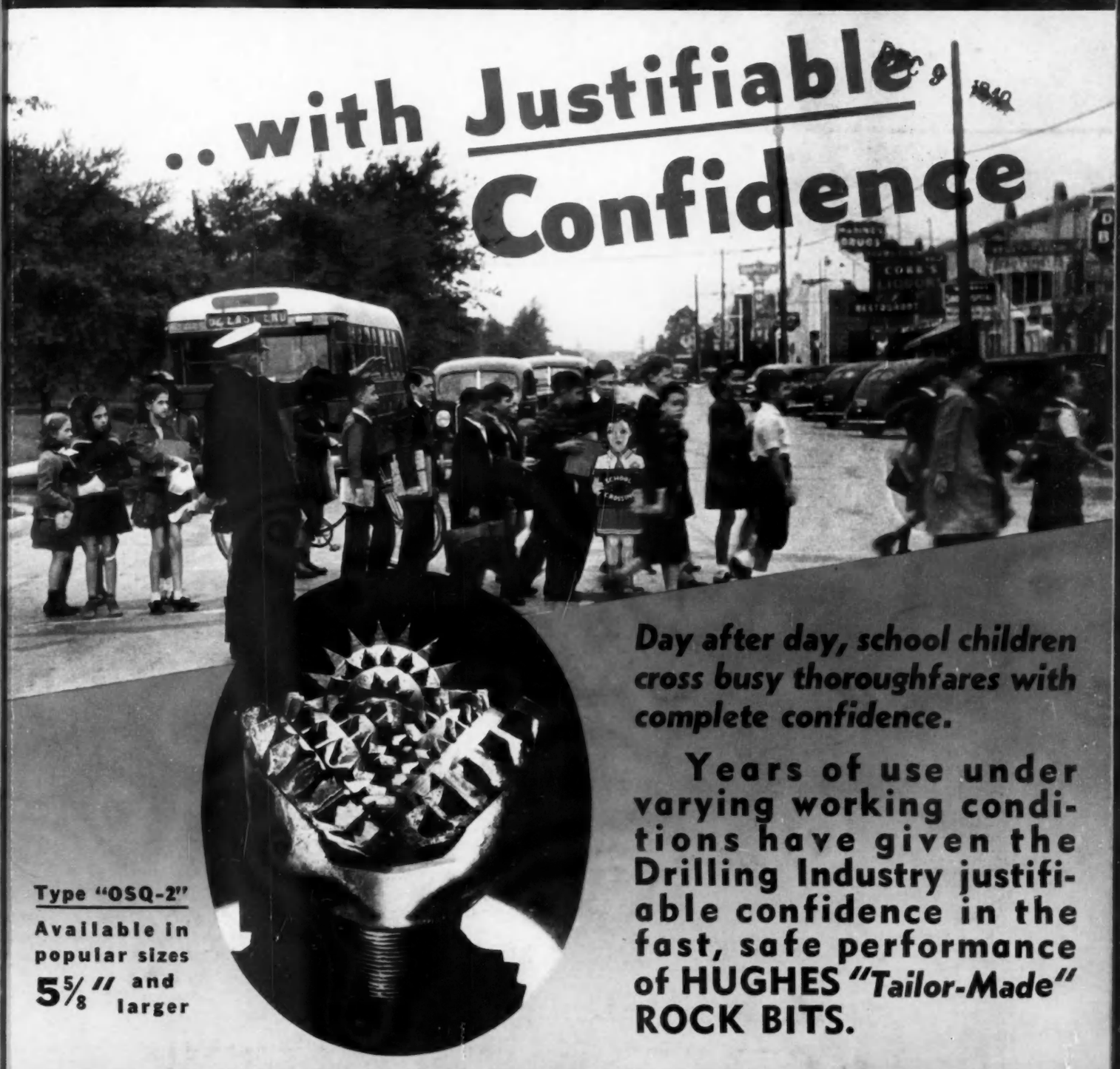

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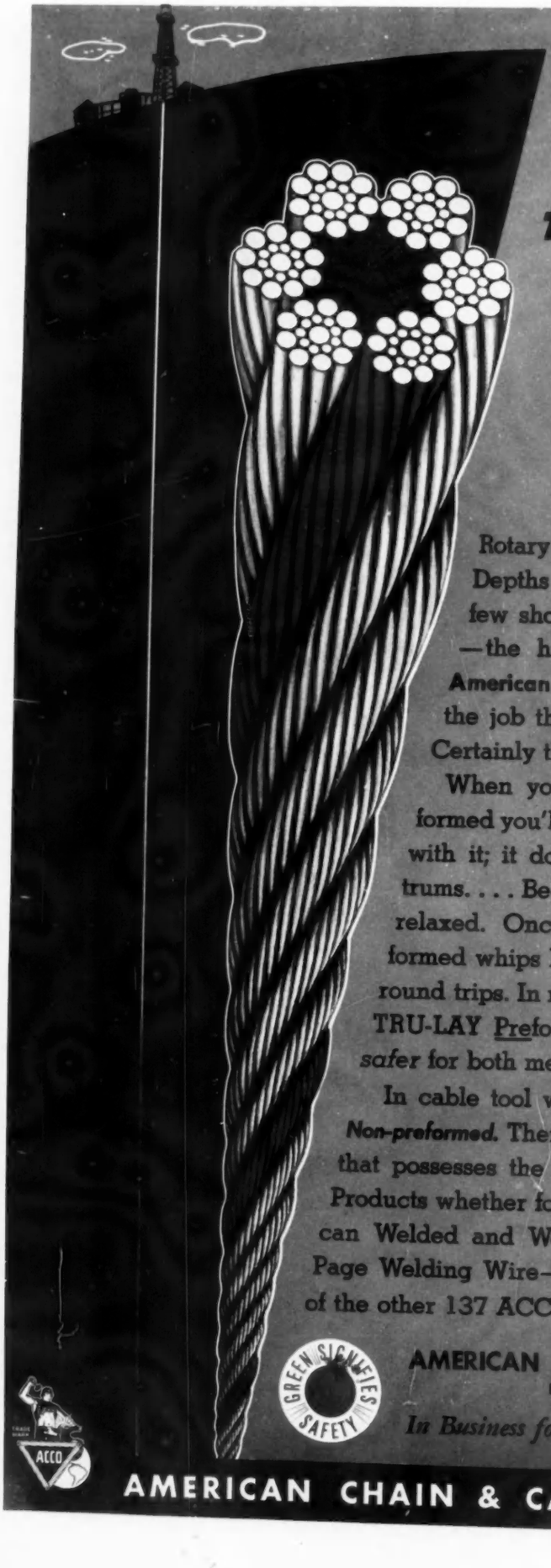

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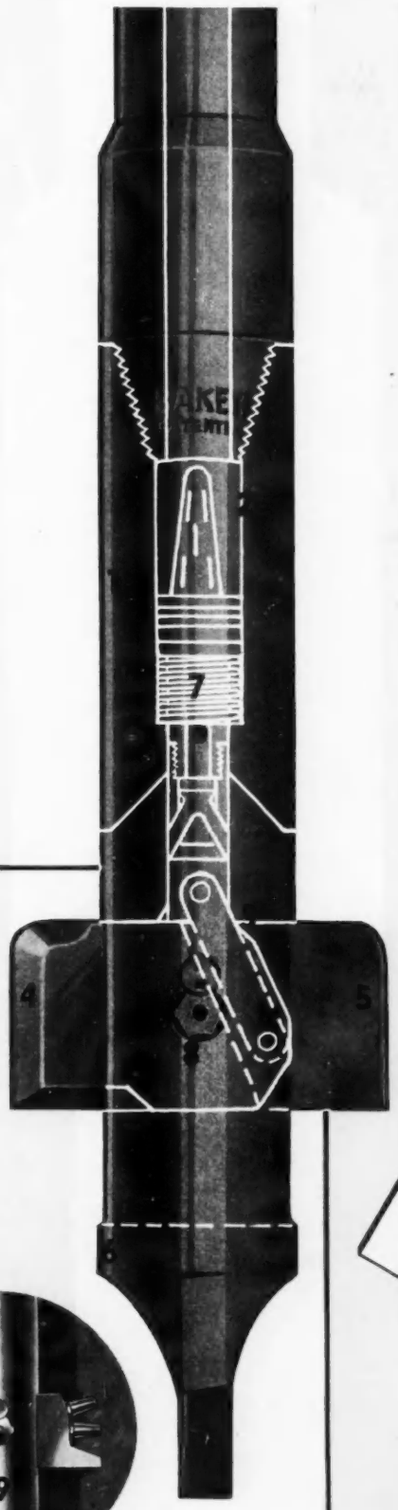

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9. Conversion into a Baker Wall Sampler by Changing Blades . . . an exclusive Baker Feature.

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LOOKING AHEAD

WITH THE EDITOR

EDITORS OF THE OIL WEEKLY have just concluded their seventh annual three-day conference, during which time they prepared a general outline of the editorial contents of the publication for 1941.

When this procedure was first adopted, we were surprised how a well-outlined discussion of editorial content brought out new ideas, how closely the information which one district editor may have dovetailed into the suggestion another editor had, and how finally the conference as a whole broadened those who took part in it. Yet, THE OIL WEEKLY is the only petroleum paper which, on a wide scale, plans the outline of the following year's editorial content, far in advance. Of course, special assignments are made throughout the year as new and timely subjects develop.

At the conference, every phase of the industry is discussed. Such major classifications as economics, field development, drilling and producing operating practices are broken down into all their various ramifications, each of which are studied and discussed. As subjects are discussed, assignments are made to the different editors. This may be to write the article, or to assist another editor through the development of special data, or it may be to get some authority within the industry to write the particular article. Usually from 150 to 175 definite assignments are made in this way.

This advance planning enables the editorial department to keep the right balance between subjects, and eliminates the danger of "over-loading" on one subject while neglecting another which may be important.

In looking ahead to the year 1941, our editors contemplate a fascinating opportunity for editorial effort. With the industry's economic conditions changing constantly, with its operating methods being improved steadily, with its far-flung search for new reserves and its unusual world-wide political ramifications, the year promises to be a most active and interesting one.

UNNECESSARY DRILLING has been the subject of much debate within the industry. It is generally recognized that excessive completion of wells has caused the persistent decline of per-well allowables under proration which now threatens to shrink revenues to the point they no longer will pay for operations. Certainly it is one of the most serious

The OIL WEEKLY, Published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

Correct rope reeving saves wire rope dollars . .

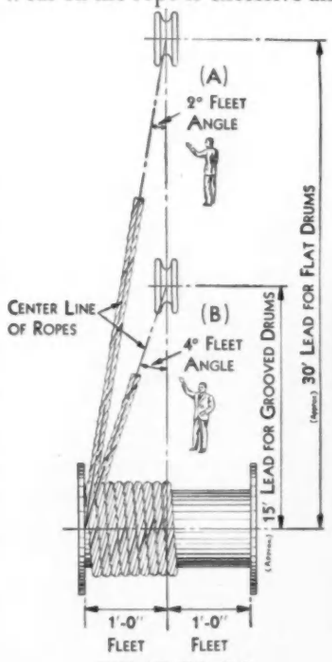
This is No. 6 in a series of informative articles for wire rope users prepared by the Macwhyte Wire Rope Company.

Avoid excessive fleet angles on your equipment

The fleet angle is that angle included between lines drawn from the center of the drum, and from the flange of the drum, to the lead (first) sheave. Both (a) and (b) below are illustrations of fleet angles.

Wire rope is often seriously damaged when this fleet angle is excessive. Side wear and severe scuffing result. Often individual wires become misplaced, bruised, crushed.

Grooved drums are damaged, too, by wide fleet angles. Ropes wear against the groove walls, grinding them down. Wear on the rope is excessive also.



WHAT TO DO

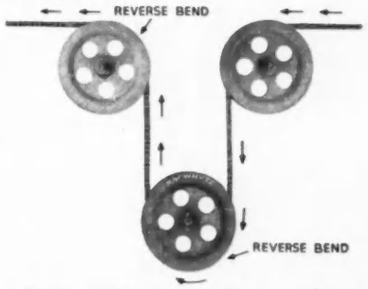
Check the fleet angles on your equipment. Keep the angle as small as possible. A fleet angle between 1° and 1½° is ideal. Fleet angles as low as ½° and up to 2° for flat faced drums and 4° for grooved drums are permissible for most hoisting equipment. If the fleet angle exceeds these values, then look out for excessive drum wear or poor spooling.

Guard against reverse bends

Years of experience and many tests have proved that reverse bending and excessive wire fatigue reduces rope life as much as 50%.

Where reverse bending cannot be eliminated, use the largest sheaves possible and place them as far apart as you can. By getting the MAXIMUM distance between reverse bends, you reduce fatigue—provide for longer service.

Keep sheaves aligned, too. Countless rope dollars have also been lost because sheaves are out of line.



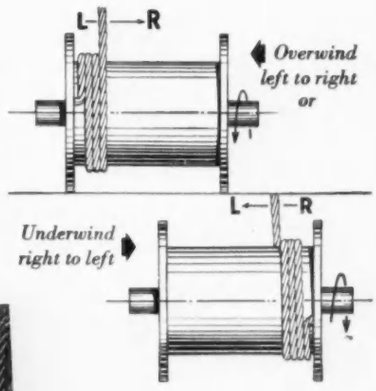
You can detect misalignment by uneven groove wear. Keep sheaves in line. You'll save money.

Steer clear of slip-shod spooling

Make sure the rope is wound on your drum in the *correct direction.* Rope wraps will then be close to each other and in line. Rope wear will be reduced to a minimum.

If rope is started in the *wrong direction,* however, uneven winding will result. Ropes cross and crush each other, causing a "burning" and scuffing of wires.

The following drawings show correct spooling for right lay rope when observer stands behind drum looking toward the direction of rope travel:



SEVERAL LAYER WINDING

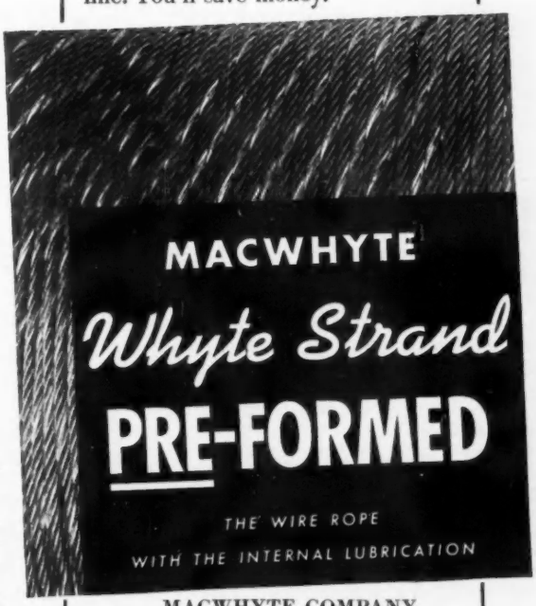
There is usually considerable wear and scuffing against drum flanges when ropes change from one layer to the next. You can offset this condition in two different ways:

FIRST, and most effective, use rope of such length that there will be only one layer of winding; or when this is not possible . . .

SECOND, use a rope of MORE than sufficient length so that a short section can be cut from the drum end occasionally. This moves up the point of wear.

Previous articles in this series are available on request on your company letterhead, also G-13 general wire rope catalog containing much helpful information.

NO. 495



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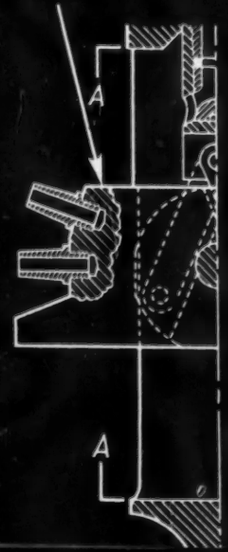

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ENLARGING HOLES
FOR GRAVEL PACKING

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FISHING JOBS

WATER SHUT-OFF TESTS

TAKING CORES FROM SIDE WALLS
OF PREVIOUSLY DRILLED HOLE
. . . BY SUBSTITUTING SAMPLER BLADES
FOR THE REGULAR SCRAPER BLADES

These and other efficient time and money saving applications are described in detail in the Baker Broadcast No. 19 (gladly sent upon request). Complete information will also be found in the Baker Section of the 1940 Composite Catalog.

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The Oil Man's Calendar

DEC.	
9-14	National Asphalt Conference, Dallas.
12-13	Petroleum Electric Power Association, Baton Rouge.
16	Mid-Continent Oil & Gas Association, Annual Meeting of General Board of Directors, Tulsa Club Roof, Tulsa, Okla.
1941	
FEB.	
22	North Texas Oil & Gas Association, Wichita Falls.
24-25	Liquefied Petroleum Gas Association, Chicago.
27-28	American Petroleum Institute, Division of Production, Southwestern District, Shreveport.
MAR.	
11	American Petroleum Institute, Division of Production, Spring Meeting, Pacific Coast District, Los Angeles.
APRIL	
2- 4	American Association of Petroleum Geologists, Twenty-sixth Annual Meeting, Houston.
17-18	American Petroleum Institute, Division of Production, Eastern District, Pittsburgh.
23-25	Petroleum Industry Electrical Association, Tulsa.
23-25	Natural Gasoline Association of America, Dallas.

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A paper presented before the Quarterly Meeting of the Interstate Oil Compact Commission in Tulsa, December 6-7, 1940

The Principles of Allocation In Oil Conservation

By JOSEPH E. POGUE*

Member, Advisory Committee on Economics to the Interstate Oil Compact Commission

THE chief concern of the Interstate Oil Compact Commission and the state conservation agencies is the prevention of waste in the production of petroleum, an objective specified by law and supported by public opinion. The determination of production quotas is a pivotal factor in the conservation mechanism. Upon the soundness of such schedules, as much as upon the conformance to them, depends the success of the undertaking. It is the purpose of this paper to review the methods of allocating the demand for oil and to suggest modified procedures designed to relieve the tensions now appearing in the system and to induce a more logical and consistent functioning of the regulatory machinery.

Principles of Conservation

The administrative practices which have been developed to implement conservation are popularly known as proration, after the chief characteristic of the system. The proration process is firmly established by the conservation laws of the various oil-producing states and has become institutionalized as an essential procedure in the petroleum industry. The methods of proration must logically be concerned primarily with matters of physical efficiency in production, with considerations of equity and economic equilibrium as limiting factors. The latter assume such importance in practice that they are apt to be emphasized to the detriment of the conservation objective. Any reversal in ranking that would lose sight of the primary standing of conservation would set up forces making for the evolution of the administrative function into a centralized, regimented form of economic control. These principles, *in their proper rank*, must underlie a sound system of allocation.

Equity is both a legal and an ethical concept. If the legal aspects of equity are violated, the courts will invalidate the practice. If the ethical aspects are transgressed, the sense of fair play is destroyed and grievances are created, alienating popular support and leading either to disintegration of the system or else to regimentation for enforcing conformance.

Equilibrium is an economic function and embraces the balancing of supply and demand, both as a whole and internally amongst the several parts. Proration practice can, in a measure, disturb the equilibrium of the industry and therefore it incurs the obligation of compensation. When the degree of conformance of production to forecasts of market demand is varied widely by proration authorities, the occasional periods of economic instability which ensue may be prolonged almost indefinitely. On the other hand, the over-all equilibrium of the industry can be improved appreciably by reducing the magnitude of the swings in production by the device of regulating output closely to forecasts of market demand. Establishment of unbalanced proration formulas, grants of special allowables, and erratic policies within and between the states upset the internal equilibrium of the industry. It is entirely practicable, however, for proration to make a contribution to this area of equilibrium by employing techniques which tend to restore normal incentives and provide for more uniform rates of depletion. In this way, the investment required is minimized, logical price differentials are encouraged, and the unstable shifting of trade channels is largely eliminated. Equilibrium must not be made the primary objective, with

* The writer is indebted to his associates, particularly Dr. Norman D. Fitz Gerald, for suggestions and assistance in the preparation of this paper.

conservation merely as an attribute, for proration would then degenerate into a stabilization measure with its inherent tendency toward extreme centralization. This outcome can be avoided if prices remain free to perform their natural economic functions as governors of capital flow. When requirements rise more rapidly than the optimum rate, discoveries should be stimulated and when the optimum rate rises more rapidly than consumption, exploration should be retarded. Equity demands that each pool be adjusted to the same percentage of the optimum rate, but to do this suddenly would upset equilibrium. It is at this point that equity and equilibrium come into conflict. These two factors can only be reconciled by utilizing the principle of *gradual transition*, that is the dimension of time, in making adjustments to the optimum rate.

The Optimum Rate of Production

The central theme of conservation and consequently of its administrative practice, proration, is the rate of production. This is the case because the primary and all-important means for the prevention of waste is the exclusion of flush flow from wells and the uniform retardation of withdrawals from natural reservoirs. The basic requirement of the proration technique, accordingly, is a practical and effective criterion for regulating the rate of production. Implicit in this essential is that every oil field shall be so adjusted in its output that waste shall be reduced to a practical minimum. There emerges; therefore, the concept of the rate that minimizes the waste per unit of production, which may be termed the *optimum rate*. This concept affords the common denominator around which the techniques of proration must logically center.

The optimum rate is a physical criterion derived from engineering data. It may be defined in the following terms:

> The optimum rate is that flow which minimizes, *per barrel of production*, development of pressure differentials or declines, release of gas from solution in the reservoir, shifting of the gas cap, retrograde condensation in the formation, and intrusion or encroachment of water.

There is no logical escape from employing the optimum rate as a guiding principle in establishing production quotas, for output in excess of the optimum is wasteful. The optimum rate is already in use, though not so called and not systematically applied. The more general introduction of this factor should not be delayed any longer than necessary, but considerable engineering work needs to be undertaken to render this standard widely available. At the present time, the optimum rate can be determined accurately for selected fields where good practice and adequate records have made the requisite data available; moreover the technique of reservoir control is advancing rapidly and our knowledge of producing formations is growing at a remarkable pace. There is little question but that a concerted engineering attack on the problem, under the urge of the full realization of its importance, would not only yield a set of data acceptable for the purpose but would also greatly enhance oil-field practice in the process. Pending this work, the objection that the concept cannot be immediately implemented can be met by utilizing some function of the optimum rate, such as the developed reserve. This factor is not as sound as the optimum rate, because it does not include the reservoir characteristics, but it has the advantage of immediate applicability, since reserve estimates of reasonable accuracy are now available. It would seem logical, therefore, that the approach to the optimum-rate methods of allocation, as outlined in this paper, might be made through the temporary expedient of substituting the reserve factor during the interval necessary to obtain accurate estimates of the optimum rate.

Techniques for Allocating Market Demand

Production quotas are a necessary mechanism in the administration of proration. Under present practice, production allowables are arrived at roughly as follows: The United States Bureau of Mines each month forecasts the total market demand for crude oil on the basis of gasoline requirements with some check against fuel oil needs. After allowing for the difference between expected imports and exports, the remainder is allocated to the various oil-producing states on the basis of trade channels. The state authority either accepts or modifies the state quotas and then makes allocations to fields on a variable basis with frequent adjustments, from which the allowables for properties are arrived at on a pro rata basis, usually at so much per well. Without going into the details of these evolving methods, it is possible to lay out a modified course of action which should improve the workability of the entire system. The proposed procedure employs the present machinery, utilizes the best features of each existing step in the process, but introduces a series of homogeneous principles, centering around engineering concepts, designed to result in sounder and more equitable standards for production.

Step 1. *Determination of total market demand:*

The forecasts of total market demand as now made by the United States Bureau of Mines are practical and satisfactory. It might be advisable, however, to broaden this work to embrace estimates of consumption for each product, probable levels of imports and exports in harmony with national policies, and changes in stocks of all oils. These data could then be used to estimate the volumes of various grades of oil required and recommendation could be made to the states by types of petroleum necessary to meet probable demands. In this way the flow of oil could accommodate itself more readily to seasonal and cyclical shifts in consumption. The bureau makes no recommendations as to inventory changes for crude oil, leaving this factor to the competitive action of the states, which contributes some desirable flexibility to the system.

Step 2. *Allocation of market demand to states:*

Present practice, as followed by the Bureau of Mines in preparing its recommendations for state allowables, rests heavily upon the trade channel theory of allocation. The flexibility of this method and the ease of gaining acceptance for it are its prime assets. The failure of this procedure to anticipate rapid rises and declines in flush supply, as for example in the recent case of Illinois, which results in a lagging conformance to actual shifts in demand, is a drawback only in exceptional cases where important discoveries are developed in states not adhering to the principles of proration; even here the situation could be handled by adjustments derived from production forecasts and analyses of inventory changes. Fundamentally, however, flush production has no place in a proration system and such situations should gradually disappear.

Long-range policy and equity sug-

gest the possibility of improvement in the state allocations by introducing the consideration of a new principle directly tied in with waste prevention. Trade channels are capitalized expressions of a mutuality of interests between economically related segments of supply and demand; they cannot be violated except at the expense of both equilibrium and equity; but since supply and demand have a mutual reaction, it is possible to induce a gradual shift in trade channels, within certain limits, in order to gain an improved flow pattern with reference to the conservation objective. To this end, the following plan is offered which, in addition to forecasts of market demand, requires data on optimum rates which can properly be developed by the Interstate Oil Compact Commission working in close cooperation with the state conservation bodies. The following formulas, allowing for slow transitions and time to perfect data for determining optimum rates, are merely suggestive:

Suggested Method for Allocating Total Market Demand to States

1st Year	State	=	90% by Market Demand	+	10% by Optimum Rate
2nd Year	State	=	80% by Market Demand	+	20% by Optimum Rate
3rd Year	State	=	70% by Market Demand	+	30% by Optimum Rate
4th Year	State	=	60% by Market Demand	+	40% by Optimum Rate
5th Year	State	=	50% by Market Demand	+	50% by Optimum Rate

Note: The procedure is as follows: Allowable demand is first allocated on the basis of market demand; then a separate allocation is made on the basis of optimum rate; and finally the quotas thus obtained are weighted and combined as shown above. In the first and second years developed reserve may be used as a base for allocation instead of the optimum rate, switching to the optimum basis in the third year. The degree of graduation of the formulas in time is experimental and subject to modification with experience.

The insertion of the new factor in the trade channel method of determining state allocations would result in the development of a production pattern more in harmony with the conservation ideal, undoing some of the rigidities introduced by the freezing effect of the present quota system. The objectives would be to gain greater equity and higher efficiency, without destroying equilibrium or impairing the investment in existing physical facilities.

Step 3. *Allocation of state demand to regions:*

The natural economic unit for proration is the petroliferous region, which frequently is not coextensive with political subdivisions. Many of these areas are crossed by state lines, as for example the Pennsylvania-Grade area, the Illinois-Indiana section, the Permian Basin, the Gulf Coast, and others. These great petroleum regions have individual homogeneous characteristics such as quality of the oil, physical facilities, investment pattern, and markets. State allocations are required for administrative purposes, but they must be subdivided into regional allowables which in turn are a necessary stage in determining field quotas. The Interstate Oil Compact Commission can play an important part in promoting uniform proration policies in interstate oil regions and thereby substantially contribute to conservation.

At present, the breakdown of state quotas into regional allowables is handled by state authorities in an indirect manner. A gain would be registered if this function were made more specific and the results promulgated; for it appears that regional allowables are now merely summations of field quotas, instead of the basis for the determination of field quotas. The distinction is more important than it appears offhand, for a greater degree of competition should exist between regions than between the fields within a region. Proper field quotas cannot be computed until the regional allowables are first established. The same allocation principles apply to regions as to states and the same procedures would naturally be in order, although the divided region offers a new problem in administration specifically within the sphere of the Interstate Oil Compact Commission.

Step 4. *Allocation of regional demand to fields:*

At this point in the system a new principle enters, that of the community market, but its implications will become clearer after consideration of the manner in which field quotas may be prorated to the component properties, which will now be discussed, returning to field quotas later.

Step 5. *Allocation of field quotas to properties:*

Perhaps the most firmly established principle in the entire area of proration is that properties within a single oil field shall be produced ratably. The reason for this rule is both physical and legal, involving the elements of conservation and equity. The method of prorating output amongst the several properties in a field is still in the course of evolution from the well as a unit toward the optimum rate as the ultimate common denominator. When the well is used as the base, overdrilling and excessive investment are stimulated to the detriment of equity and equilibrium. The procedure is now going through the intermediate stage of employing acreage as a modifying factor to represent the available reserve. This shift in emphasis from the well to the reserve has resulted in more logical well-spacing patterns and a closer approximation to equity.

The principle governing the allocation of quotas to individual properties is the prevention of important pressure differentials with their impairment of recoveries and infringement of correlative rights. While the optimum rate is of controlling importance in considering the reservoir as a whole, there is a simplification in administration which may be applied to individual properties and wells. The developed reserve may be employed as a first approximation for prorating the field market to the property units, with subsequent adjustments and corrections when large pressure differences occur or other criteria of the optimum rate are transgressed. Differential takings result in cross drainage, upset uniform underground depletion, and bring about waste of reservoir energy resulting in the violation of both conservation and equity. The avoidance of these consequences necessitates recognition of a *community market* within the field and the principle of a common market for the single reservoir has become firmly established and institutionalized even though not formalized by name. No one could reasonably advocate non-ratable takings within the reservoir and therefore no one could logically contend that there is a special market demand for oil from a particular property.

Discussion of Step 4: Allocation of regional demand to fields:

The principle of the community market is applicable to intra-regional allocations, although it has not been widely recognized in this area, much less established as an accepted practice. The absence of its application

here has given rise to serious administration difficulties on the part of the state commissions, and to disruptive inequities affecting competing operators. Proration has been of presumptive advantage to certain segments of the industry and in exchange for its benefits certain obligations have been incurred. Among them is acceptance of the principle of a *community market* instead of a *private market,* just as proration has invalidated the *law of capture* by replacing it with the concept of a *common reservoir* in the operation of which all producers have mutual obligations. The theory of a regional community market is an inevitable corollary of the theory of the community interest in the oil pool itself.

Recognition of the broad principle of community interest in the regional market for crude oil greatly simplifies the problems of proration. It clarifies, among other things, the status of special allowables. One of the bugbears of proration is the claim of a special demand for oil from a particular field not contemplated in the existing quotas and outside the allocations already made. It is difficult to deal with such representations, not to mention settle the problems of equity among fields in the same region which may arise from unbalanced increases in production. The factors creating pleas for special allowables are varied but most of them stem from the interest of a buyer in the particular field or in the gaining of markets by concessions in price. Each of these influences is inimical to the general welfare of the industry and carries with it the seed of further complications. Should the recognition be necessary of a bona fide extra and unusual demand, as applying to a particular field, the situation could be met by shipments from storage or through anticipation of future production. The concept of the community market, however, does not admit of special allowables, except when it can be demonstrated beyond question that quality specifications can only be met from a single source; and such cases can readily be identified by a well informed commission.

Once the idea of a community market is firmly established for the fields within a region, the principles governing the breakdown of regional quotas into field allowables can be formulated and implemented. The central theme of conservation is that no field shall be permitted to exceed its optimum rate. The optimum rate accordingly becomes the natural and logical common denominator. Full

equity between the fields of a region requires that all be produced at the same percentage of their respective optimum rates, except insofar as this principle must be modified in practice to provide for wells not properly proratable. Changes in procedure must logically take into account the factors of equity and equilibrium and therefore the basis of setting allowables should be altered gradually, so as to move slowly towards the optimum rate method, if necessary using reserves at an intermediate stage. The following plan using graduated formulas is suggested for consideration in making allocations of regional allowables to the various fields producing crude oil of like quality:

In special cases it may be necessary to make departures for a small part of the demand where rigid specifications for certain qualities can be met only from particular crudes, but such situations are either well known or could readily be ascertained.

Suggested Method for Allocating Regional Allowables to Fields

First: Deduct non-proratable production from the regional allocation.

Second: Allocate the remainder according to the following formulas, employing each factor separately and combining the weighted results to obtain the proratable quota.

1st Year	Proratable Quota =	80%	by Market Demand +	20%	by Optimum Rate
2nd Year	Proratable Quota =	60%	by Market Demand +	40%	by Optimum Rate
3rd Year	Proratable Quota =	40%	by Market Demand +	60%	by Optimum Rate
4th Year	Proratable Quota =	20%	by Market Demand +	80%	by Optimum Rate
5th Year	Proratable Quota =	0%	by Market Demand +	100%	by Optimum Rate

Third: Add the non-proratable production to the quota set for proratable output, thus arriving at the field allowable.

Note: In the first and second years **developed reserve** may be used as a base for allocation instead of the **optimum** rate, switching to the optimum basis in the third year.

Summary

The purpose of this paper is not to present a perfected system to supplant the one in use, but to outline the principles, now implicit in the existing system but only imperfectly applied, that may serve as a guide to influencing future changes. The purpose, further, is to stimulate discussion and to induce many minds to apply themselves to this matter, for only in such manner can progress be attained.

The principles and procedures involved may be summarized as follows:

1. Proration should be grounded on conservation, with equity and equilibrium as subordinate but essential supports.

2. The central principle of conservation is the optimum rate of production and this engineering criterion should gradually supersede economic criteria to the fullest extent possible in the techniques of allocating market demand.

3. The maintenance of equity and equilibrium requires that changes in established practices shall be graduated transitions.

4. Forecasts of total market demand by the United States Bureau of Mines should be founded on the broad base of total demand for all oils and recommendations made to the states by grades of crude.

5. The allocation of total market demand to states, as now done on the trade channel procedure, is workable, but the optimum-rate factor should be gradually accorded weight in the formula.

6. State allowables should be broken down into regional quotas to serve as the basis for computing field allowables.

7. Field allowables should be derived from regional allowables and established on a basis gradually shifting to a common ratio to optimum rates.

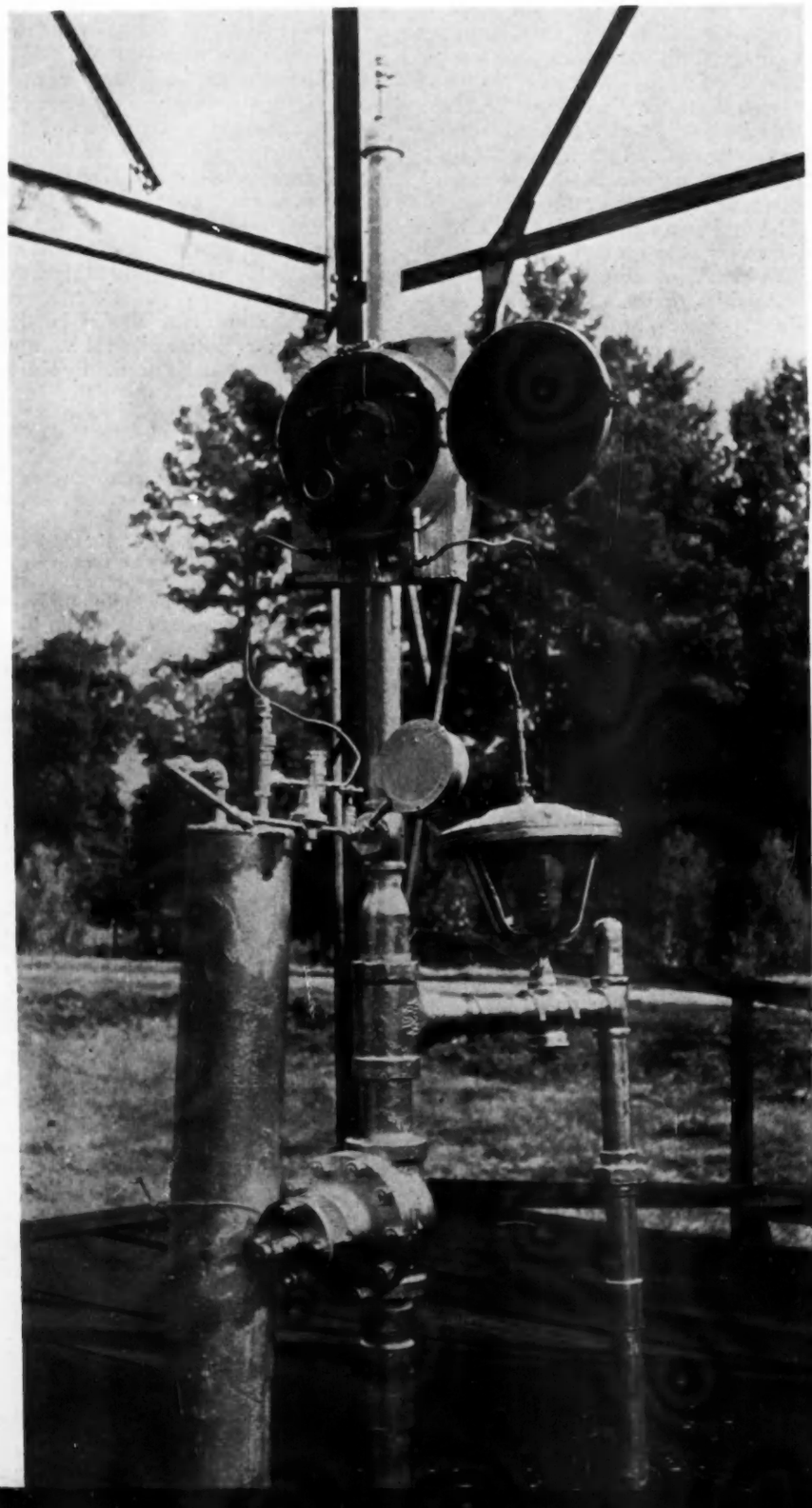
8. The community character of the market for each regional group of fields should be fully recognized and applied to the problem of special allowables.

9. The evolution away from the well as the unit of proration within the individual field should be encouraged in favor of the developed reserve as a function of the optimum rate.

10. The developed reserve may be used in place of the optimum rate for one or two years, pending the completion of the engineering work necessary to develop optimum-rate standards.

11. The Interstate Oil Compact Commission can play an important part in coordinating the work essential to an improvement of the allocation system.

Streamlining Production Prevents Flood Delays

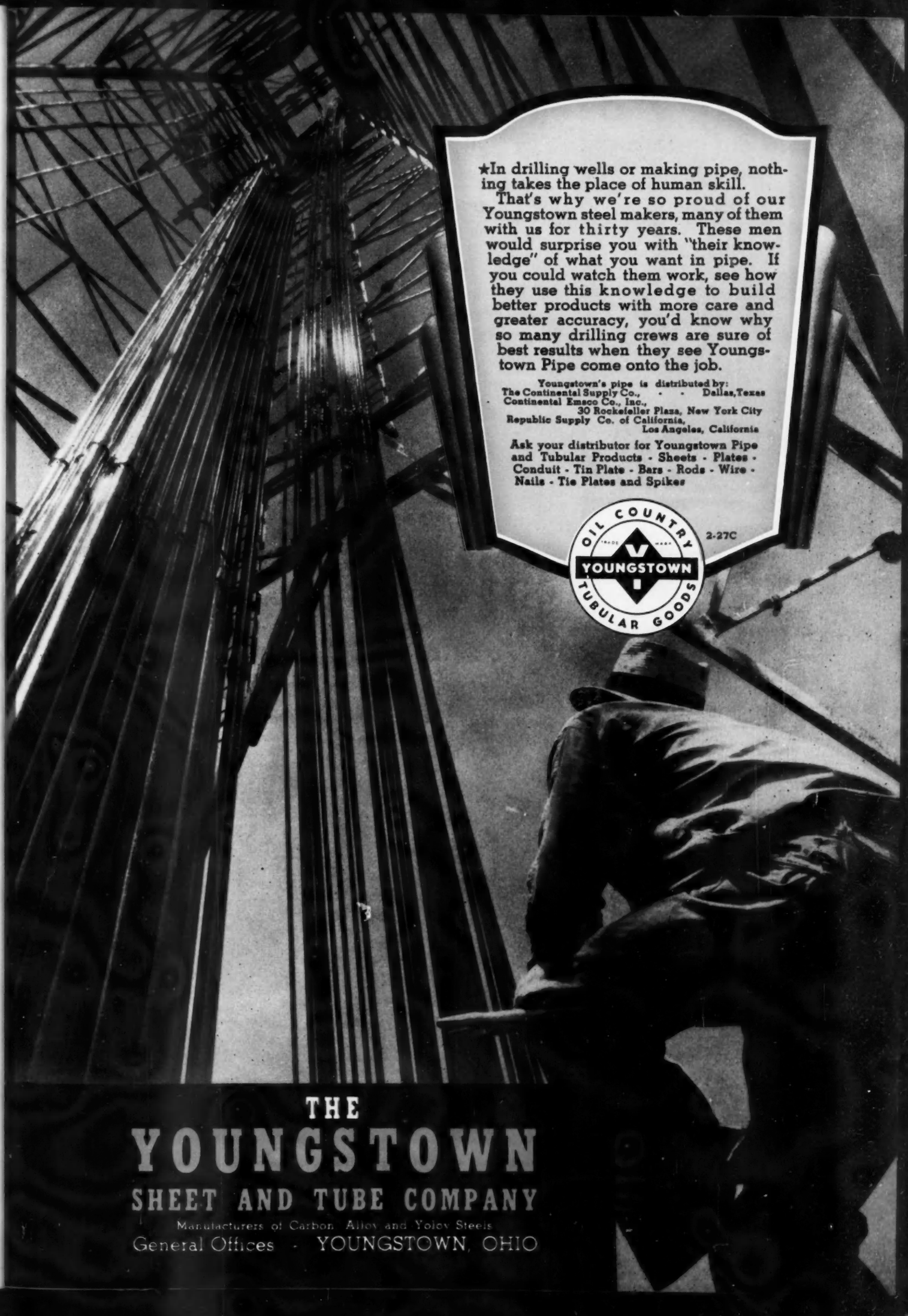


WITH production so cramped by proration regulation that the color of ink used in totting up the ledger goes to the red on little provocation, producers are hard put to it to avert what the lawyers term "acts of God" when such misadventures further reduce wells or lease output. Since proration regulations do not recognize such "acts," and allowables lost in this manner cannot be made up at later date, every precaution is taken to limit the possibility of such disaster.

In much of the East Texas field periodic and often protracted floods tend to limit access to wells lying within the high-water valley of the stream, and to prevent the flowing of these units with consequent loss of oil to adjoining, and higher, leases. To counteract this loss, river-bed producers go to great pains to streamline their wells so as to minimize this inequality. The method of preventing flood shut-down varies with topographical conditions at the site, and with maximum flooding anticipated, as shown by earlier flood gauges.

Wells lying within the low-water channel of the Sabine, for instance, are enclosed in massive concrete piers, engineered to provide maximum resistance to current overturning effort; and, in some cases, even designed to aid the current itself in the building of earthen buttress or support down-stream from the well. Simplest of these piers is the square or rectangular section, set with one face athwart the normal current flow. With the well set one third the distance from the upstream face, this form is effective against overturning force of the current, even when a rela-

Mechanism of "clock" well, opened to show master cam and trip mechanism which flow well over long periods without attention.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Upstream edge of Figure "4" concrete pier enclosing well located within main current area of flooded terrain.

tively large mass of driftwood happens to lodge against the top of the pier and add its thrust to that deriving directly from the water.

Turning the concrete structure so as to present a corner to the current instead of a flat surface greatly reduces the probability of driftwood masses building up against the pier, but the downstream effect is to encourage scouring around the base of the pier, with possible weakening.

One series of wells uses a modified design much the shape of a figure "4," with the upright or "stem" of the figure nearest and parallel to the normal bank line and along current flow. The short projecting leg at right angles to the bank, together with the longer section extending downstream, tend to facilitate the depositing of silt by the current in the angle between the two, and thus provide for natural reinforcing of the structure as time goes on. The sharp upstream edge deflects (or rather, fails to provide lodgment for) driftwood, while the sloping side turns current flow outward from the well site. Such a pier, compared with a rectangular one having the same overall dimensions, will require but four tenths the concrete needed by the other, and will have greatly improved fending properties.

Earthworks Effective

Where the well is subjected to flood action only, it is possible to provide flowing security through application of elementary rules of stream control by this means. One producer simply builds mounds at each of his wells, extending above highest recorded water levels, and trusts to a thorough blanket of sod to withstand the comparatively short period of current erosion.

Experience has demonstrated that the earth fill which lies parallel to the current flow is cut away throughout practically its entire length, while the dike which lies athwart the flow is forced to withstand current cutting only on the corner around which the stream flows. Advantage of this fact is taken by extending the upstream end of the dike outward so as to provide a jutting end which carries current force back into the stream, providing relatively stagnant water along what would otherwise be the limiting face of the dike.

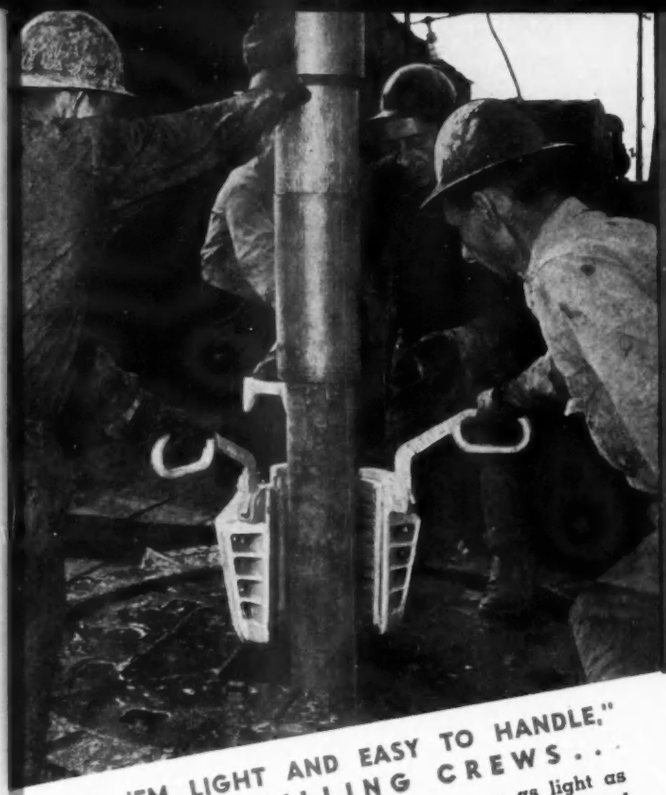
In one such instance the building of a current-directing wing (which was practically carried away during a flood) required less than one fifth the earth-moving expenditure necessitated by replacing the stream side of the dike after a previous inundation.

Where flood waters surround a well or lease site, making the upstream end of the dike like the head of a letter T provides protection for the main dike lying behind it.

On one lease having one side exposed to stream action, a sawtooth or serrated edge was found effective, the current being deflected outwardly at each point, and building new high ground below each projecting section. By facing the upstream point with logs or sheet-steel piling, the silting effect down the stream will nearly compensate for erosion, and require only occasional grading work to maintain the system at the proper condition to afford lease protection.

Where the river bed is unconsolidated, derrick substructures are

Several thousand cubic yards of earth make this mound which effectively dwarfs the Christmas tree atop it, located only through the board carrying well and lease data.



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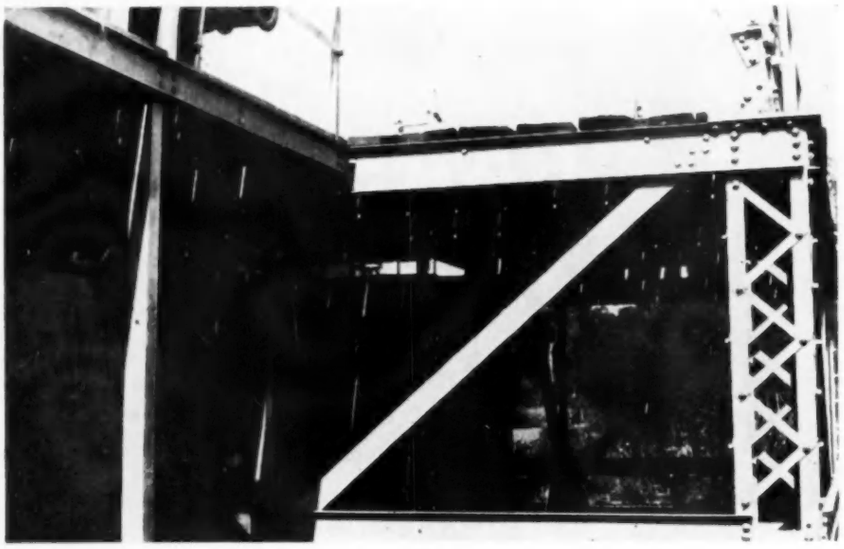

Massive concrete and braced steel support well and pumping unit and permit uninterrupted production even though surrounding terrain is under water several feet.

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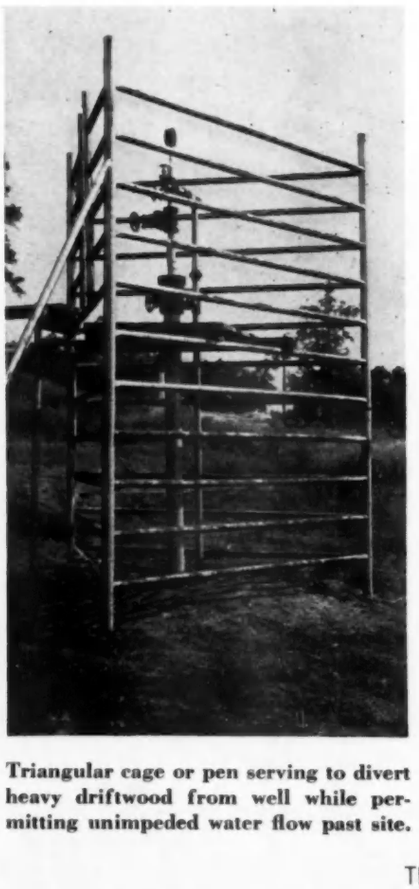

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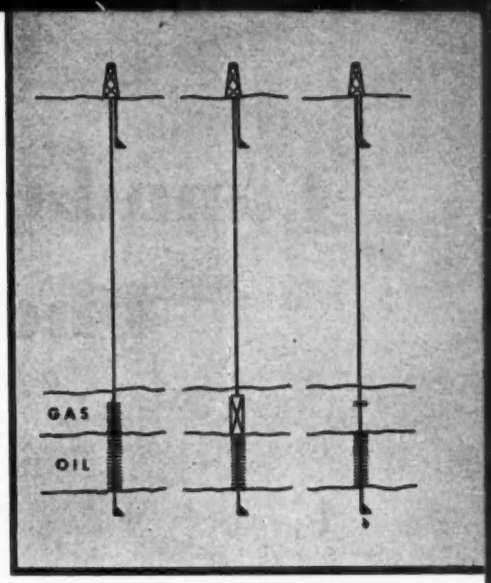

TO CORRECT GAS/OIL RATIO

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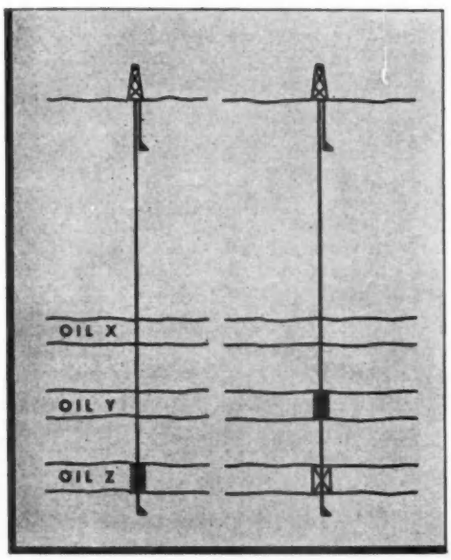

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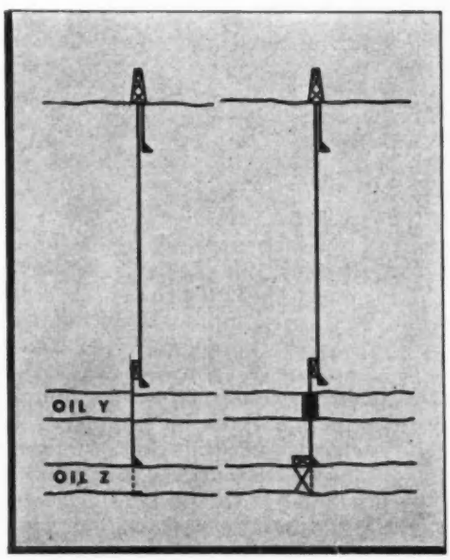
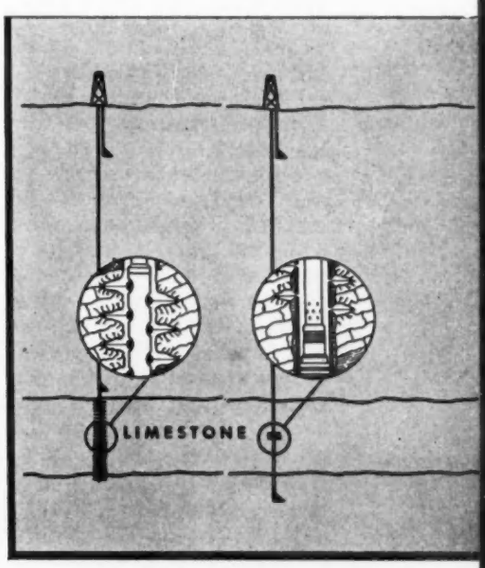


PLUG-BACK OPERATIONS

Many wells classed as off production have really passed through profitable sands cored off on the way down. Operators find it profitable to Gun Perforate such potential horizons as their drilling records indicate, or to test by exploratory Gun Perforating until a producing formation is located. Plug-back operations alone have increased immeasurably the industries' resources of heretofore unrecoverable oil.



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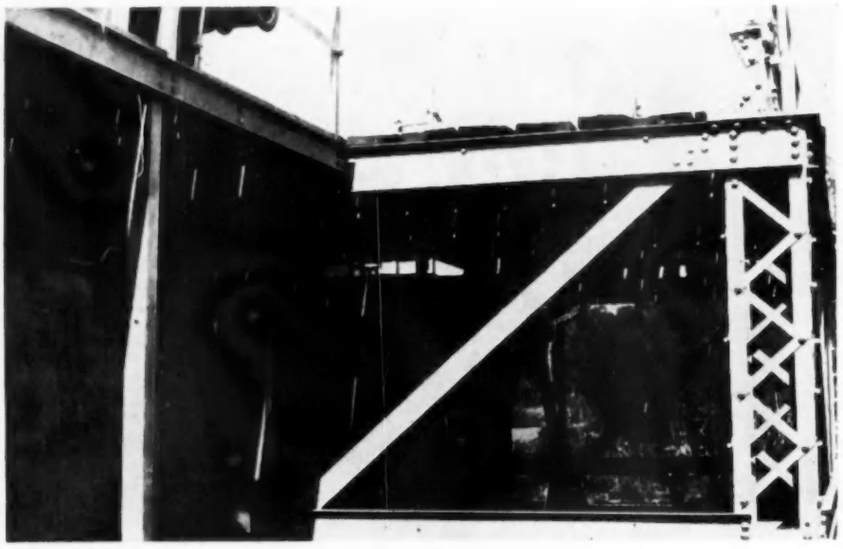

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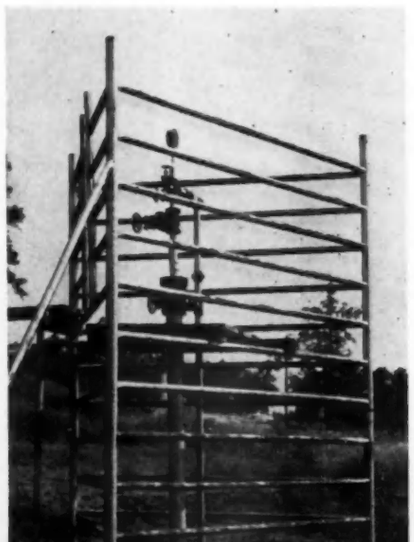

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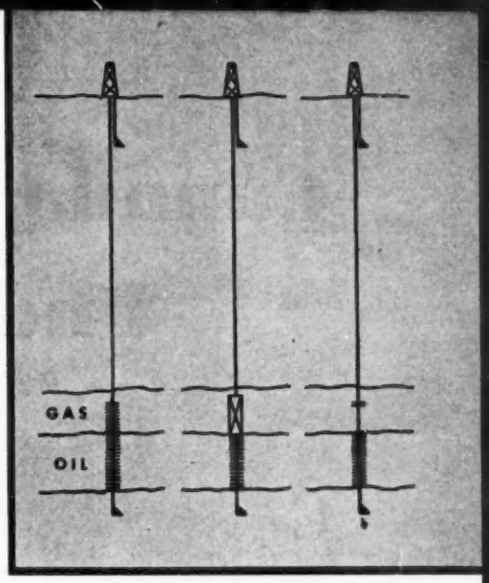

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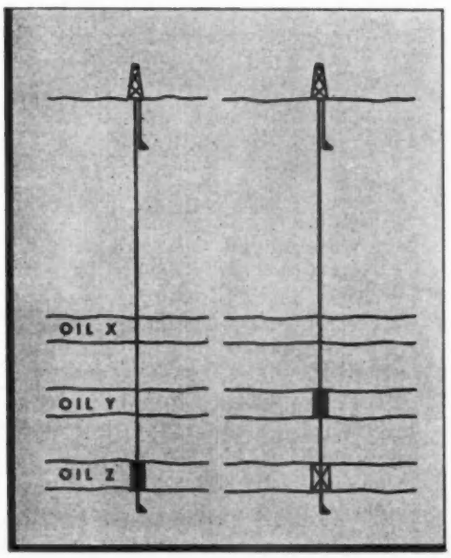
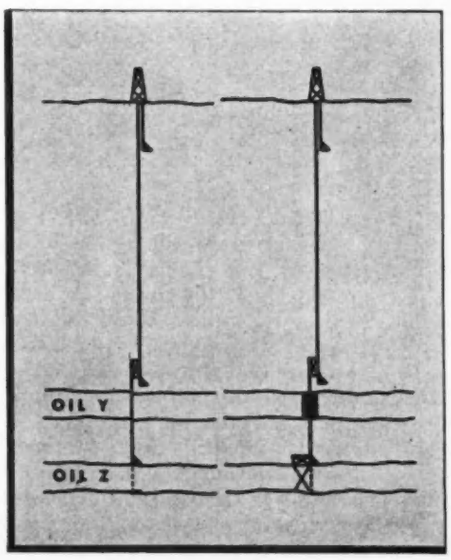


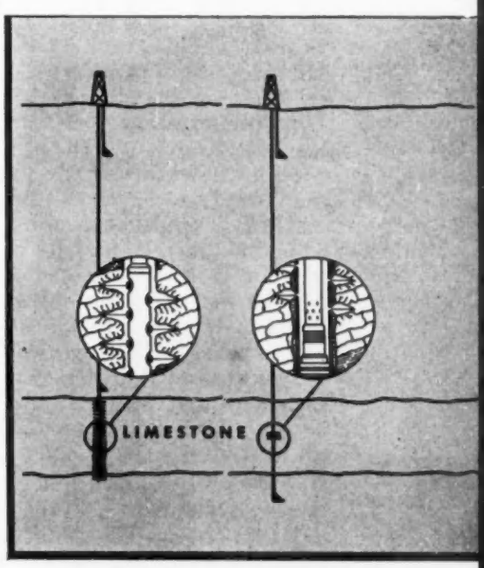
SELECTIVE COMPLETION

Operators today drill and cement casing straight through the lowest producing sand. From accurate Electrolog records producing zones are located. Gun Perforation of the casing permits production of individual zones. As each zone is exhausted a bridging plug is run and the next higher zone is gun perforated for production. Selective completion allows for greatest production of well at lowest cost.



PLUG-BACK OPERATIONS

Many wells classed as off production have really passed through profitable sands cored off on the way down. Operators find it profitable to Gun Perforate such potential horizons as their drilling records indicate, or to test by exploratory Gun Perforating until a producing formation is located. Plug-back operations alone have increased immeasurably the industries' resources of heretofore unrecoverable oil.



FOR ACID TREATMENT

Limestone formations are successfully prepared for acid treatment by Lane-Wells Gun Perforator with notable savings in time and money and with improved results. Gun Perforator bullets penetrate far into the formation, each channel being completely filled with cracks and fractures to provide a substantial increase in exposed area.

PROVE TO YOUR OWN SATISFACTION THE ADVANTAGES OF USING LANE-WELLS SERVICE

Whatever program of well control you are developing to meet today's competitive and restrictive production requirements you'll find it will pay you to discuss your plans with a Lane-Wells man. His job is to help you lower your production costs and increase the production of each well.

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Canada Pushes Oil Production Under Wartime Needs

CANADA'S oil industry is playing an important part in Canada's war effort with new record production, the building of new refineries, equipment to make most of the aviation gasoline needed for the British Empire Air Training Plan in the Dominion, a constant search for new fields, and controls over ordinary commercial selling expansion. Canada is about the only part of the British Empire where oil and gasoline rationing are not enforced, but some control has been placed over the expansion of retail distribution outlets. No gasoline or oil rationing is expected in the Dominion unless the war should last till 1944 or 1945.

Production of crude petroleum amounted to 5,426,813 barrels at end of August, as compared to 5,066,251 barrels for the same period in 1939, and 4,448,837 barrels for the first eight months of 1938. Practically all this production comes from the Turner Valley field near Calgary, Alberta, where it is expected that 35 or 40 new wells have to be drilled annually to keep up this production. Other fields in Alberta and neighboring Saskatchewan are being explored for production.

An oil controller was appointed late in the summer, George R. Cottrelle, Toronto financial and corporation expert, president and director of many Canadian companies. While not an oil man, he is an organizer with wide industrial experience in putting rundown companies on their feet.

Since the start of the war, extensions to capacity of refining units have been made, details of which are necessarily military secrets. Storage facilities have had to be erected at certain points, new products have had to be devised to meet wartime requirements. At least one firm in the industry has developed a new line of aviation oils, while the industry is now able to produce all the aviation gasoline required except for a small quantity of 100 octane rating.

No attempt is being made to force oil wells to deliver oil beyond their capacity to produce economically. The oil controller feels that this war may be a long one, and that a steady production of crude oil may be even more important a few years from now than at present. To ensure that in the future the Turner Valley field will be able to take care of the prairie market, extra storage facilities are being built, so that next summer and autumn crude oil will not have to be imported from the United States to meet harvesting needs, while at the same time wells will not have to cut down on winter production. Not so long ago the Turner Valley field was on a proration scheme, and there was talk of pipe lines to bring the oil to the eastern Canadian market more cheaply than by rail. All this is now forgotten, and all production is being sold to the military, war industries and for commercial use. Canada's gasoline consumption was 807,666,000 gallons last year, much of which had to be imported. With Canada needing her foreign exchange for purchases of many war necessities in the United States, it is essential that Canadian oil production take care of as much of this gasoline need as possible. Similarly with fuel oil, much of which is imported into eastern Canada. No new fuel oil furnaces may be installed using more than 4000 gallons annually, which limits new installations principally to private homes.

Natural gas production, 35,185,146 cubic feet last year, is being harnessed in the Turner Valley region for the manufacture of explosives. A new government-financed plant is under construction near Calgary, costing between eight and nine million dollars, which will allow the gas from the field to be used for war industries in the area, and after the war for the manufacture of fertilizers.

Operating refineries last year had a daily capacity of 200,020 barrels of crude oil, with about one third that capacity located in Quebec province and about one quarter in Ontario. During the year 1,307,704,411 gallons of imported crude oil and 262,198,884 gallons of crude oil, naphtha and absorption gasoline from Canadian wells, or a total of over 1,500,000,000 gallons was put through Canadian refineries. This was about 61 percent of the quantity they are equipped to handle. Over 63 percent of the gallons was imported from the United States, 20 percent came from other countries, and 17 percent from Canadian wells.

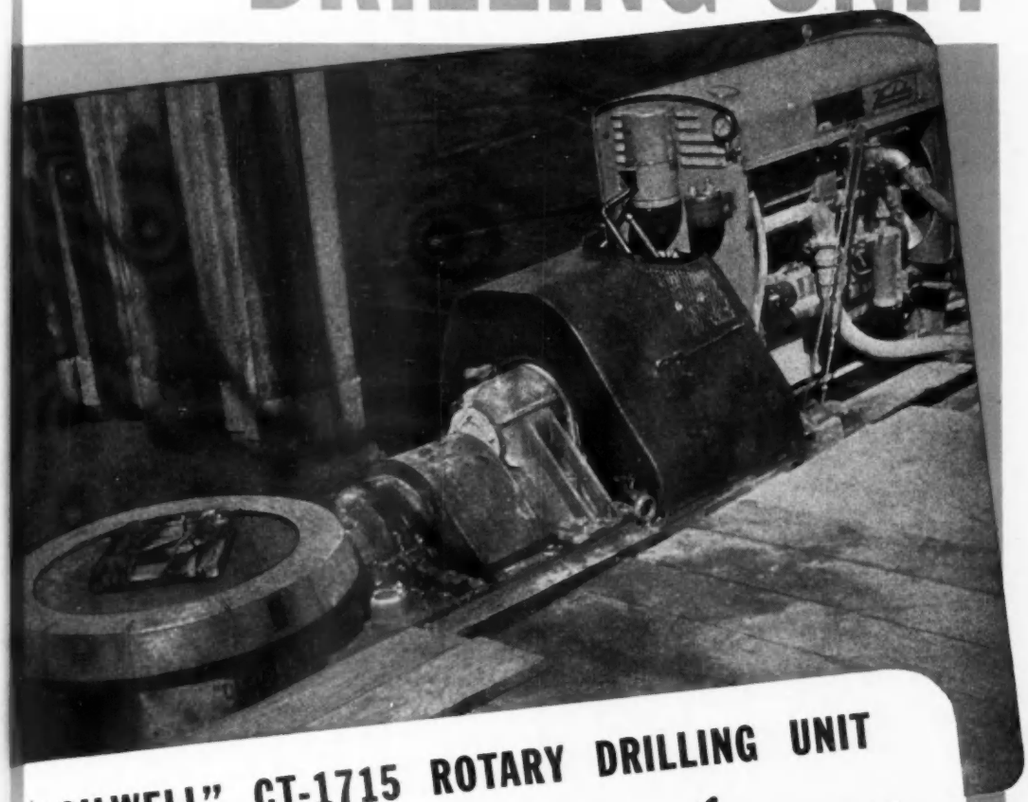
Refinery production of gasoline in 1939 amounted to 740,563,619 gallons of which 405,738,237 gallons were made by the straight run process and 334,825,382 gallons by cracking. The gallonage of gasoline made last year was the greatest on record. Imports of gasoline amounted to over 109,000,000 gallons, and total sale of gasoline as computed from provincial gasoline tax accounts amounted to 807,666,298 gallons. (Canada had 1,439,245 motor cars registered last year.)

Production in Canadian refineries of fuel and gas oils totaled 582,705,683 gallons. Imports aggregated nearly 60,000,000 gallons and exports nearly 3,000,000 gallons. Lubricating oils were produced both in the refineries and in the blending plants, the actual figure being close to 25,000,000 gallons, with imports an additional 18,000,000 gallons. Lubricating greases produced in Canada amounted to over 13,000,000 pounds with nearly 8,000,000 pounds additional being imported.

Largest refinery operated in Canada has a daily crude oil capacity of 32,500 barrels. There are five other plants with daily capacity between 12,000 and 29,000 barrels.

NEW *Fluid Drive* DRILLING UNIT

—brings steam-engine smoothness and flexibility to internal-combustion engine rigs.



TAKE hold of the throttle of an "Oilwell" CT-1715 Rotary Drilling Unit with internal-combustion engine prime mover and you will think you are drilling with steam. The power output of the engine is transmitted through a hydraulic torque converter, providing steam-engine smoothness, flexibility, and simplicity of control. Torque is greatly increased for the heavy loads at low speeds. The engine can't be stalled.

The design of the CT-1715 Rotary Drilling Unit is backed by extensive experience in manufacturing, field-testing and constantly improving this type of equipment. In 1935 "Oilwell" pioneered the Rotary Drilling Unit — a portable unitized assembly including an oilbath rotary, direct-connected to its individual prime mover through a gear box. The first units were equipped with vertical twin-cylinder steam engines and soon were widely accepted by progressive operators. Their many advantages are now well-known.

In 1939 "Oilwell" extended the applications of rotary drilling units to service on mechanical rigs where steam is not available, by introducing the CT-1715 Unit with an internal-combustion engine and hydraulic torque converter.

(Left) One of several "Oilwell" CT-1715 Rotary Drilling Units in Illinois

"OILWELL" CT-1715 ROTARY DRILLING UNIT

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FEATURES . . .

★ Steam-engine smoothness and flexibility with wide range of power and speed.

★ Shock-cushioning hydraulic drive extends the life of the rotary and engine and even the drill pipe and bit.

★ Rotary speed is controlled by an engine throttle wheel at the driller's position . . . no other controls and no clutches.

★ Automatic vacuum brake stops rotation for setting and removing drill pipe slips.

★ Increases the capacity of a multiple engine rig by making the engines available for slush-pump drive independent of the rotary.

★ Permits rotating to prevent sticking of the drill pipe in case of failure of the hoist or hoisting engine.

★ Integral auxiliary sprockets (hidden from view by guards in illustrations) permit emergency drive of the hoist with the drilling-unit engine or emergency drive to the rotary from the hoist.

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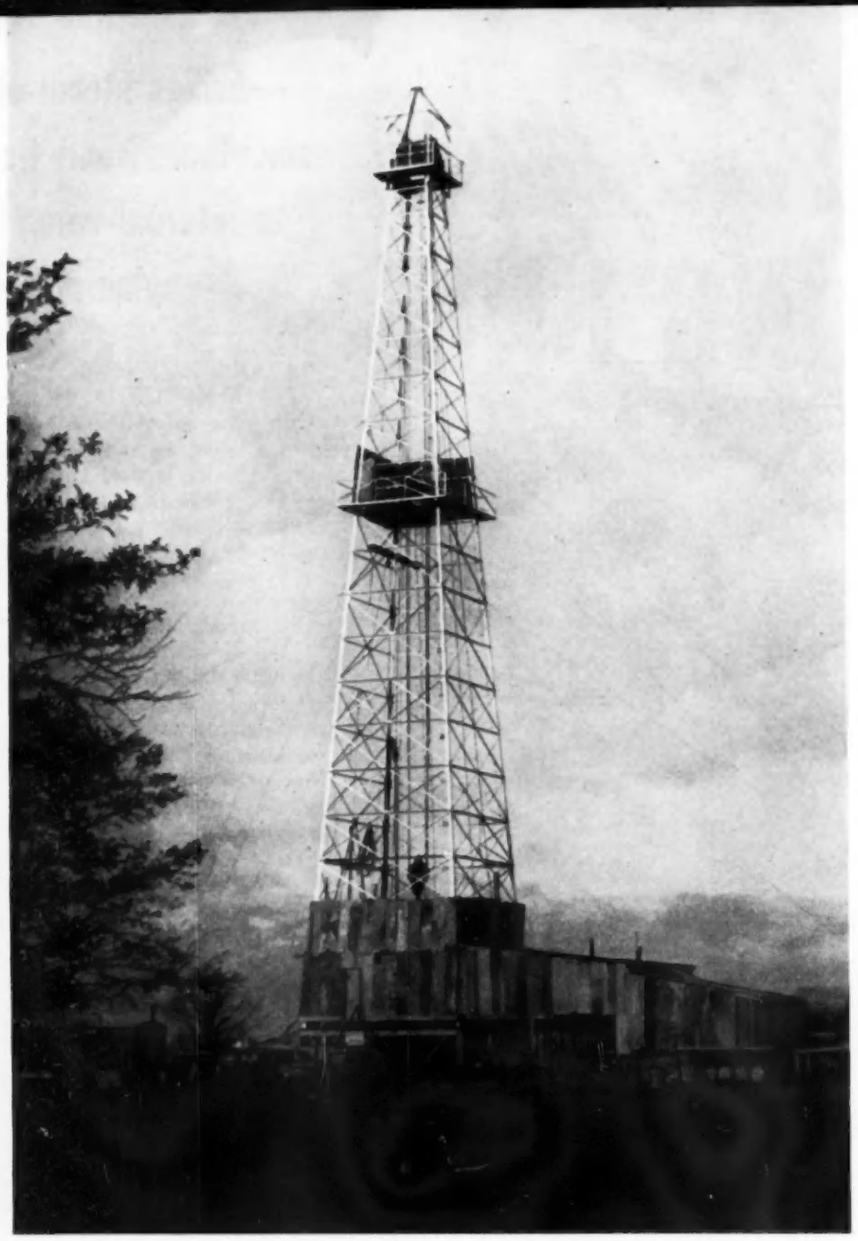


First projected Trenton and St. Peters sand test in Michigan's central basin area. Gulf Refining Company's Bateson 1, 2-14n-4e, Bay County, now holds the State's depth record and is expected to be carried to 9000 to 11,000 feet.

Michigan Getting First Real Deep Exploration

IN 15 YEARS of comparatively active development oil production and drilling in Michigan has been confined chiefly to two zones, the Traverse and Dundee limestones. Only a negligible amount of oil has been produced from other formations and only scattered and infrequent tests have been carried ahead once the Traverse and Dundee have been found dry.

Commercial oil production has been found for the most part in only one formation in a particular field. The Traverse limestone is the source of virtually all oil production on the west side of the state, while the Dundee is the chief source in the central part or basin. Only in exceptional and infrequent cases have both formations produced in a given field. Apparently conditions unrelated to structural geology are present in view of the fact that the shallower Traverse is the most important correlating marker for the top of the Dundee in the basin.

Exceptions to the one-producing-zone character of Michigan pools include Muskegon, Saginaw, West Branch, Adams, Kawkawlin, and Tuscola. In these areas more than one zone has produced but not with any great regularity.

Michigan has gone without a major field discovery in 1939 and 1940 and production has been falling sharply this year. The daily

average was 65,882 barrels in January and 47,362 in October. State proration instituted in June, 1939, had been lifted by October 1, 1940, on all but one field because production had fallen below the flush stage.

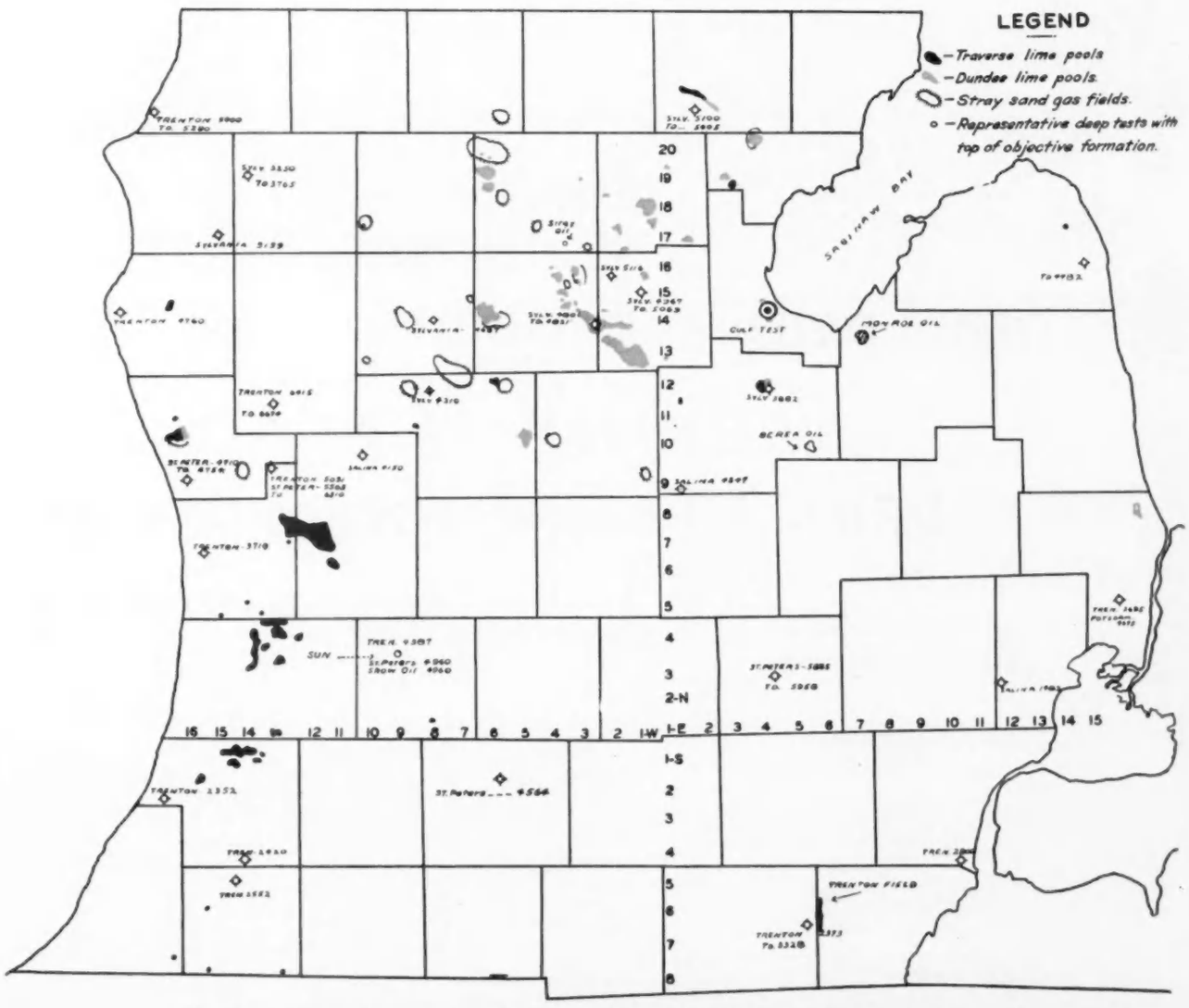
Because of the general picture outlined, Gulf Refining Company's Bateson 1, C S½ SE SE 2-14n-4e, Bay County, first projected 9000-11,000 foot test, now drilling, stands as one of the most important tests ever drilled in the state.

Depth Record

Specifically the above deep test already has established a new Michigan depth record; it will be the first well to test potential oil and gas formations below the Sylvania in the central area of the basin; it will set up important data for future correlation with geophysical prospecting, and it will be important in determining the future course of major companies in Michigan. Naturally, completion for a substantial producer in any of the deeper beds such as the Niagaran or Trenton, each limestones, or the St. Peters, a sandstone, would bring an immediate re-appraisal of the central basin's commercial development outlook.

While Gulf Refining Company's test must be properly classified as wildcat below the Devonian, nevertheless it is not a shot into complete geological night. Gas or oil shows have been recorded in the Niagaran, the Trenton limestone is a commercial producer in Monroe County and free oil was reported as recently as November 15 this year on a test in Barry County. Exclusive of the Trenton lime field in Monroe County, at least 15 tests have been carried below the Devonian into the Silurian and Ordovician. These were located outside of the central basin province and most of the tests were made several years ago when not the best of attention was given to the saving of samples and keeping of accurate logs. For the most part the 15 or more old tests which reached the Silurian and Ordovician formations could have only relative bearing on Gulf Refining Company's deep test.

The closest old deep test is S. M. Bacon et al's Somers 1, NW NW 35-9n-1e, Saginaw County, 40 miles southwest of Gulf Refining Company's well. Bacon's test was a wildcat drilled in 1930 and abandoned at 5340 feet. The log on key beds was as follows: elevation 683 feet; Berea 1956, Traverse 2377, Dundee 2837, Detroit River 3103, Sylvania 3730, Bass Island 4034 and Salina salt 4347. Oil shows were reported at 3080, 3160 and 3906 feet. Gulf Refining Company



Map of Michigan oil production, showing location of Gulf Refining Company's deep test.

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Key Deep Tests Drilled in Michigan

County	Company	Year	Location	Top of Key Formation	Total Depth
Newaygo	Newaygo	1935	12-13n-13w	Trenton 6385	6674
Ottawa	Mich. Pet.	1930	6-9n-13w	St. Peters 5503	6310
Newaygo	Atlantic Explor.	1930	12-11n-13w	Lockport 5245	5561
Livingstone	Talbot Oil	1935	35-3n- 4e	St. Peters 5885	5958
Midland	Pure	1930	12-14n- 3w	Sylvania 4801	4821
Ogemaw	Pure	1932	2-21n- 2w	Sylvania 5100	5405
Mainstee	Ruggles	1925	12-21n-17w	Trenton 5000	5280
Mackinaw*	Van Kuren	1937	17-44n- 9w	St. Peters 1440	1502
Van Buren	Bi-County Synd.	1929	34- 2s-17w	Trenton 2352	2536
Midland	Sun	1938	9-15n- 1w	Sylvania 4967	5069
Muskegon	Muskegon Corp.	1929	8-10n-16w	St. Peters 4735	4754
Midland	Atha	1932	21-13n- 2e	Sylvania 4607	4662
Kent	Schulte	1929	31-10n-10w	Salina 4046	4650
Cass	Daniles	....	2- 7s-13w	Trenton 2439	....
Huron	Leonard	1939	10-16n-15e	.....	4482
Ottawa	Voorhees Drlg.	1939	36- 7n-16w	Trenton	4003
Alpena	C. W. Teater	1936	18-32n- 6e	St. Peters 5651	5665
Mecosta	Venedum-Trees	....	26-14n- 8w	Sylvania 4687	4737
Oceana	Oceana	1931	33-14n-17w	Trenton 4760	4875
St. Clair	St. Clair†	1930	26- 5n-16e	Potsdam 4675	4950
Saginaw	Bacon	1930	35- 9n- 1e	Salina 4347	5340
Barry	Sun	1940	8- 3n- 9w	St. Peters 4960	5013
Calhoun	St. Clair	1931	14- 2s- 6w	St. Peters 4564	4571
Midland	C. L. Maguire	1940	32-16n- 2w	Sylvania 5115	5117

* Upper Peninsula. † Deepest "geologically" in State.

already is deeper by actual hole and geological correlation.

Other old tests drilled into the Niagaran, Trenton or St. Peters were located outside the central basin area and have been confined mostly to the extreme edges* of the state. The comparatively sharp rise of the beds from the center of the state to the edges makes the formations of Silurian and Ordovician time accessible to relatively shallow holes. For example 2000-2500-foot wells will test the Trenton south of Townline 5. The St. Peters comes in from 4500 to 5500 north of Townline 5-n and west of Range 15w. Working of structures northward from Indiana and Ohio also was a contributing factor in many of the early deeper zone tests in southeastern and southwestern Michigan besides the economics.

Undoubtedly many factors have contributed to prevent or delay a bona fide deep test in the central basin during the past 15 years of commercial development of shallow beds. It has been said frequently that the larger companies, who not only have had the big acreage blocks but also the cash to underwrite a deep well, have not had a desire to launch deep zone programs in Michigan because of more pressing development programs in other states. This shelve Michigan until later idea persists in some quarters but in all probability it has had little if any bearing.

*—Refers to the geographic edges of the state. The true Michigan basin province includes approximately 106,700 square miles and reaches from Fort Wayne, Indiana, to Sault Ste. Marie, Michigan. The southern peninsula comprises 40,789 square miles or 38⅓ percent of the entire basin province. The remainder includes portions of Wisconsin, Illinois, Indiana, Ohio and Ontario, Canada, as well as nearly all of Lake Michigan and Lake Huron.—Source: Publication 38, Michigan Geological Survey.

Shallow Development

A more likely reason for a 15-year wait for a deep test in the central part of the basin is that operators have been fairly busy in their efforts to develop not only shallow but known commercial zones. Despite the fact that Michigan has not come through with an important field discovery since 1938 not all of the known structures have been adequately explored, not to mention the liklihood of unidentified structures.

Wildcatting in Michigan is carried on through a program of very close relationship between large and small units. In particular is this true in regards to central basin development where 3500- to 4000-foot tests are necessary to reach the Dundee lime or dolomite. Ordinarily from $12,000 to $20,000 is the cost to complete a central basin wildcat.

Selling of spreads by the promoting individual or smaller company to the bigger companies, or contribution of acreage by majors for re-sale by the promoter along with dry hole contributions, forms a very necessary part of the wildcatting programs. Dry hole contributions on 4000-foot tests ranging from $500 to $2500 each to set up a gross "kitty" of $6000 to $10,000 are not out of the ordinary. Naturally, there would have to be a very different financial set up for deeper holes.

Opening of southwestern Michigan in 1938 for 1000- to 2000-foot Traverse production where $2500 to $5000 usually is enough to test the objective zone on a dry-hole basis immediately swung interest in that direction. It not only diverted attention for the moment away from deep drilling in the central basin but actually cut central basin exploration to 3500- and 4000-foot known productive beds to nearly zero.

The Price Factor

Oil prices have been generally too low to attract money into deep exploration. In fact there seems to be considerable justification in the claims of many producers that the margin between the price for crude and the cost of production is too slim to provide the setting aside of a budget for future exploratory work. Generally, oil prices have hovered around a dollar for the past five years, hitting a peak of $1.42 late in 1937 and going to as low as 68 cents for 3900-foot Dundee oil in Clare County, December 28, 1938. From that time on it was not until August 24 this year that dollar oil again was restored to central basin producers.

As far as the situation is locally affected, it seems probable now that prices will continue stronger than in the past and perhaps generally higher. The 1939 oil conservation act enables the state to prorate for either physical or market waste and there is little chance that discovery of new flush fields will mean over-saturating of the market as in the past with consequent breaks in prices. Another stabilizing factor on price today is the Michigan independent refinery market. Prior to 1935 Michigan producers were almost wholly dependent on out-state markets. At present 24 independent refineries in the state normally require from 45,000 to 60,000 barrels of oil daily.

That Gulf Refining Company is pioneering the first central basin deep test comes as no surprise to persons familiar with Michigan development history. While this company has not as many producing plays as some others, it has consistently carried on aggressive exploration and has been among the front row in adopting new techniques or experimenting with new ideas. It drilled the first full-hole rotary central basin well, drilled the first directional hole well, and has underwritten extensive core sampling of objective formations, gun perforating of formations and casings, and geophysical work.

Bateson 1, is an on structure location in so far as the upper beds go and was originally completed in 1939 for a commercial oil well in the Monroe dolomite.

Gulf Refining Company drilled the discovery well in the field, usually referred to as the Kaw-

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kawlin pool, in 1938, at Marston 1, SE SW NE 1-14n-4e, which was completed at a plug-back depth of 2933 from 2956 feet, for a 15-barrel Dundee limestone well. Top was logged at 2735 feet. The company then drilled Swantek 1, NW SE SE 35-15n-4e, and completed for a 50-barrel Dundee well at 2876 feet.

Bateson 1, C S½ SE SE, 2-14n-4e, was completed in June, 1939, for a 60-barrel oil well in the Monroe dolomite at 3817 feet. Hole was drilled to 4454 feet, picking up the Sylvania sand at 3945 feet and logging free oil saturation in this zone. Best pay in the Sylvania was around 3995 feet and on swab tests it recovered as high as 26 barrels in a 14-hour period. However, water either from the same zone or in close proximity to it created such a production problem that it drilled ahead. No further free oil pays were reported in the Sylvania. It then was plugged back and acidized and produced from the Monroe pay. On initial tests following a series of nitro shots and acid treatments, the well flowed and swabbed as high as 157 barrels of oil in 15 hours. The pay had not been exhausted when the decision was made this fall to deepen, although it had not been produced for several weeks because of broken tubing.

Production figures for the Bateson well and the other two producers are not available on an individual basis but combined, the three wells had produced 35,410 barrels of oil to October 1 this year. Of this, 18,511 was produced last year and 9,155 the first 9 months this year.

A fourth well (the third Dundee lime producer) was completed last month by L. C. MacGregor at Kircher 1, SW SW NE 2-14n-4e, a farmout lease from Gulf Refining Company. This well flowed 112 barrels net in 12 hours after acid treatment from 2850 feet. MacGregor has moved in rig for another Dundee test at Ann Kircher 1, SW NW NE 2-14n-4e.

Coring and Geophysics

Gulf Refining Company took up the Kawkawlin block of several thousand acres five years ago and conducted an extensive shallow core drilling campaign and a supplemental geophysical campaign through the block before making the initial Dundee test. The field is unique in that it is the only one in Michigan generally credited as discovered by geophysical methods. Slim-hole coring to such beds as the Red Rock and to depths of 1200 to 1700 feet in the central basin continues to be the most widely used method to locate structure by the larger companies.

The Bateson deep test originally was carried to 4454 feet with cable tools by Parker Drilling Company, Tulsa contractor. It was started with deep hole intentions, with 116 feet of 16-inch casing set for the drift string, 666 feet of 13-inch through the Marshall-Red water zone, 1810 feet of 10-inch through the Berea water zone, 3129 feet of 8-inch through the Dundee and into the Monroe, and 3775 feet of 7-inch, which was later pulled after testing the Sylvania.

Hole was plugged back from 4454 to 3817 feet and produced from the Monroe limestone. Log showed sea elevation at 599 feet, glacial drift 1 to 100 feet, Traverse lime 2020 feet, Dundee 2714 feet, Monroe 3079 feet. The Dundee carried oil shows at 2763-96-99, 2808-12-31-36-38-40 feet. Monroe showed oil in several zones with the best free oil at 3515 to 3550 feet.

Generalized Michigan Formations

SYSTEM	FORMATION		DESCRIPTION
Pleistocene	Drift		Sand, clay, gravel
Permo-Carboniferous	"Red Beds"		Shale, gypsum, sands.
Pennsylvanian	Saginaw		Sand, coal, shale, limestone.
	Parma		Sandstone.
Mississippian	Grand Rapids	Bayport	Limestone.
		Michigan	Shale, dolomite, sandstone, gyp, anhydrite.
	Marshall		Sandstone, shale.
	Coldwater		Shale, lime.
	Sunbury		Shale, pyrite.
	Berea		Sandstone
	Bedford		Shale.
	Bedford	Ellsworth	Shale.
	Upper Antrim		Shale.
Devonian	Lower Antrim		Shale.
	Traverse		Limestone, shale.
	Traverse	Bell	Shale, lime-shale.
	Dundee		Limestone, dolomite, chert.
	Detroit River (Monroe)		Dolomite, anhydrite, chert, pyrite, salt, lime.
	Sylvania		Sandstone, dolomite, chert.
Silurian	Bass Island		Dolomite, lime, anhydrite.
	Salina		Rock salt, dolomite, lime, shale, anhydrite, pyrite.
	Niagaran		Limestone, dolomite, chert, shale.
Ordovician	Cincinnatian		Shale
	Trenton		Limestone, dolomite.
	Stone River		Lime, shale.
	St. Peters		Sandstone
	Prairie du Chein Hermansville		Dolomite, sandstone, chert.
Cambrian	Lake Superior		Sandstone

Deepen with Rotary

When deepening operations started this fall, Parker Drilling Company again was contracted for the drilling, and rotary was chosen for the deep-hole program. Several weeks of work was devoted to preliminary operations which included dismantling of the old cable tool derrick and setting rotary 136-foot steel derrick mounted on an 8-foot high rig platform, 27 by 27 feet, anchored to 6 by 6 by 4 corner concrete supports. It is the tallest and heaviest derrick ever assembled in Michigan.

Drilling operations had to be delayed several weeks at the start to fish out 360 feet of 3-inch tubing. Once the tubing was milled and fished out, it was necessary to pull the 8-inch casing, set at 3117 feet. Considerable trouble developed at this point but it was finally washed out by introduction of oil and special lubricators. The 10-inch, 1810 feet, also was pulled.

Before decision to ream and reset a string of casing through the old Monroe lime pay was made,

Michigan Production by Districts

YEAR	Basin	West Michigan
1925	4,000	.....
1926	94,000	.....
1927	432,070	1,928
1928	258,019	234,601
1929	1,383,571	3,157,688
1930	2,630,267	1,297,962
1931	3,254,486	531,147
1932	6,466,608	579,057
1933	7,619,968	322,027
1934	10,385,520	217,239
1935	15,662,970	113,267
1936	11,825,284	92,629
1937	16,135,214	439,130
1938	16,290,671	2,454,038
1939	13,060,675	10,401,420
1940*	9,432,760	7,694,148

* Ten months. West Michigan includes Allegan, Kent, Muskegon, Oceana, Van Buren, Ottawa, Cass and Barry Counties. All other counties included under basin.

Although intended to show accurate division of production as to shallow fields in western part of State, it also shows the approximate Traverse and Dundee Lime source division. Only negligible amount of oil under West Michigan from other than Traverse and over 90 percent of oil under Basin had Dundee Lime as it source.

experiments were carried on with both special cements and chemicals but 100 percent results could not be achieved. It was necessary to seal off the old pay not only because of the oil but also because considerable gas coming from the same zone, it was anticipated, would cause a mud regulation hazard. Hole was finally reamed out from 1810 to 3625 feet where 9-inch casing was run. The old total depth of 4454 feet was reached October 6. Preliminary operations had started August 5.

From 4454 feet to 7383 feet (November 18) formations have included alternating and broken dolomite, lime, anhydrite, salt, chert and shale. Top of the Salina, member of the Silurian, was logged at 5480 feet. At 7383 feet hole was still in the Salina.

The operation set a new state depth record November 4 when the old mark of 6674 feet was exceeded. The old mark was established by Newaygo Gas & Oil Company's Bates 1, NE NE SE, 12-13n-13w, Newaygo County, in 1935. It was drilled with cable tools, being spudded in 1929 but not worked continuously. A great deal of second-hand equipment was used and that the hole was open below 3192 feet and often was left idle for weeks with from 2000 to 4500 feet of water, so the record of 6674 feet was no mean accomplishment. It was abandoned after drilling top of the Trenton at 6385 feet and failing to log an important show.

First serious trouble zone on Gulf Refining Company's deep test developed at 7368 feet where gas of undetermined origin started to set up a blowout and had drilling fluid coming back as high as the second derrick girt before it was brought under partial control. A core taken at 7373 to 7383 feet showed some gas in the salt but it did not seem likely that salt gas would have been responsible for the entire trouble. Gas from shale or lime breaks in the Salina at shallower depths was believed to have been responsible.

State's Heaviest Rig

Parker Drilling Company's rotary rig is by far the heaviest piece of equipment ever assembled in Michigan, and it has in four months become the "show place" for Michigan operators, drillers and contractors. Power is supplied by two 300 horsepower (geared down to 223 horsepower rating) Diesel 6-cylinder engines, geared to operate individually or in twin.

With the hole cased to 3625 feet with 9-inch, all hole from that point has been cut with 8¾-inch bits.

A water formation encountered just below the casing depth has made it necessary to hold mud to approximately 11.4 pounds with the water weighing 10.7. The viscosity has been conditioned to 40-42. Some trouble has been experienced in maintaining the proper weight and viscosity due to the salt, in the Salina section, which is rapidly absorbed by the drilling mud. Chemical treatment has been necessary at intervals to recondition the mud.

The comparatively heavy mud probably will be a factor in preventing high speed drilling in many sections of the hole. The best time reported to November 19 was 340 feet in 24 hours in the Salina salt and shale. In the dolomite and anhydrite, however, drilling time often was cut to 26- and 39-foot average runs in 24-hour periods. For example in the anhydrite a bit after 19 hours run and 41 feet of hole had to be replaced. The other extreme showed a bit standing up for 49 hours with 456 feet of hole in salt and shale before replacement.

The sixty-third bit was run in at 7360 feet. This included reaming bits from 1800 to 4454 feet.

With the thickness of the Salina not definitely known, company geologists have anticipated that the first important zone for testing will be found before 8000 feet, this being the Niagaran lime. At 7383 feet a Salina section of 1903 feet had been drilled. If the Niagaran comes in from 8000 to 8300 feet, the Trenton lime probably will not be encountered before 9200 to 9500 feet and the St. Peters sand before 10,000 feet, and possibly deeper.

Distribution by geological formations of deep discoveries and new producing levels uncovered in the upper portion of North Texas since 1936

	1937	1938	1939	1940	Total
Canyon—					
Pools discovered	1	2	2	2	7
New oil levels	.....	.....	1	1	2
Strawn—					
Pools discovered	1	4	7	2	14
New oil levels	1	2	5	4	12
Bend—					
Pools discovered	.....	1	3	7	11
New oil levels	.....	.....	1	3	4
Detrital—					
Pools discovered	.....	.....	.....	.....	.....
New oil levels	.....	1	.....	.....	1
Simpson—					
Pools discovered	.....	.....	.....	.....	.....
New oil levels	.....	.....	1	.....	1
Ellenburger—					
Pools discovered	.....	1	.....	.....	1
New oil levels	.....	.....	.....	1	1
Totals	3	11	20	20	54

The Niagaran, a limestone, appears to progressively thicken from the southern part of the state to the northwest and well studies have shown from 200 to 450 feet in the central area. It is not a commercial oil or gas producer in the state, but tests drilled into the zone in southern Michigan have carried oil shows and considerable gas. Talbot Oil Company's McPherson 1, NE NE NW 35-3n-4e, Livingston County, drilled in 1935, had gas in the top of the Niagaran at 3943 feet. After the hole was carried to 5958 feet it was plugged back to 3950 feet and shot with 80 quarts where the initial gauge showed 478,000 cubic feet of gas. It was plugged and no further attempt has been made to develop the formation in the Livingston district. This is the best gas show of record in Michigan's deeper beds.

The Trenton limestone already has been established as a commercial formation in Michigan in the southeastern part of the state, on a continuation of Trenton production farther southeast into Ohio, and has carried shows in other parts of the state. The formation shows a preponderance of dolomite but often has been found lacking necessary porosity.

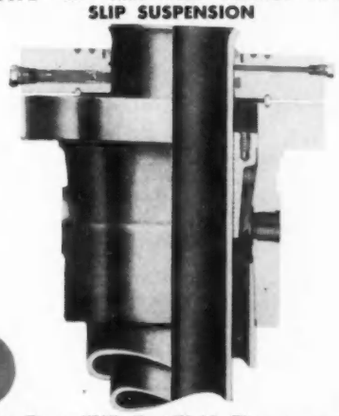
In the Deerfield pool, Monroe County, there are 15 producing Trenton wells, drilled over a period of 12 years. Most of the wells are small and produce only after a series of nitro shots and acid treatments.

A drilling revival was started a year ago when A. V. Oil & Gas Company's Gartner 3, NW SW SE 19-6s-6e, flowed 805 barrels oil natural first 24 hours from 10 feet in the Trenton at 2082 feet. Subsequent development has brought several additional Trenton wells

Cameron

THE "LAST WORD" IN CASING HEADS—FEATURES 5 INTERCHANGEABLE TYPES OF SEALING AND SUSPENSION

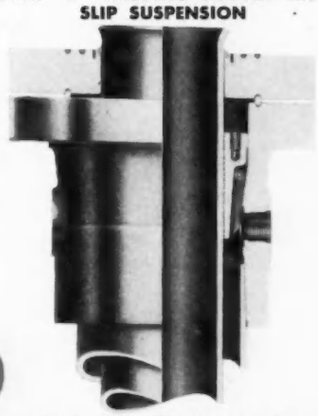
TYPE "M" TEST-WELD FLANGE AND SLIP SUSPENSION



1

The Type "M" Test-Weld Flange provides a welded seal of the space between casing strings and permits testing the weld before installing casing spool or tubing head. A secondary plastic packing seal, which may be safely repacked under pressure, permits application of hydraulic test pressure to the weld. Long slips for extremely heavy casing loads, or regular slips for casing loads up to 250,000 lbs. are interchangeable.

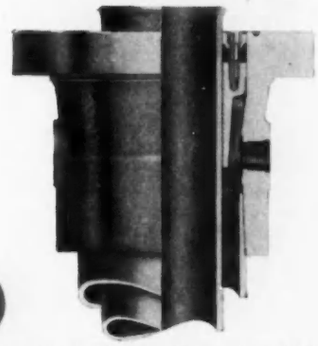
TYPE "J" WELDING FLANGE AND SLIP SUSPENSION



2

Except for the Type "J" Welding Flange, which provides no means for testing the weld, this Cameron Casing Head assembly is identical to the assembly shown at left. Note that both the Types "M" and "J" Welding Flanges are provided with a stress-relieving groove between the chamfer and the inside ring groove.

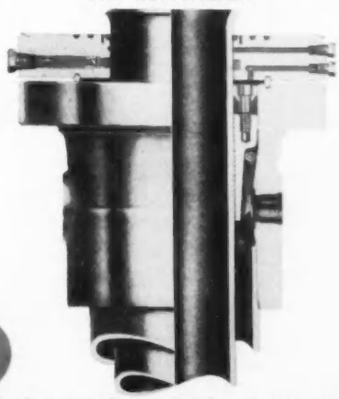
TYPE "W" NEOPRENE-ASBESTOS SEAL AND SLIP SUSPENSION



3

Where Grade N-80 casing makes field welding impractical, or for operators who prefer a resilient seal to a welded seal, this Cameron Casing Head assembly with slip suspension and a neoprene-asbestos seal between casing strings is highly recommended. The packing is expanded by tightening socket head cap screws which screw directly into the top of the slips . . . a feature that facilitates expanding the packing and eliminates exposed threads which are often damaged by drilling tools.

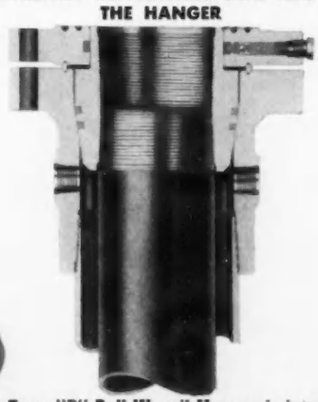
TYPE "WM" TESTING FLANGE FOR NEOPRENE-ASBESTOS SEAL AND SLIP SUSPENSION



4

This Cameron Casing Head assembly presents a combination of the Type "W" neoprene-asbestos seal and the Type "M" Test-Weld Flange with an added testing port. Obviously, the Type "WM" Testing Flange permits the introduction of hydraulic test pressure to the neoprene-asbestos seal. If desired, the casing may also be welded to the Type "WM" Flange and the weld tested in the usual manner.

TYPE "P" BOLL-WEEVIL SUSPENSION WITH AUXILIARY REPACKABLE SEAL ABOVE THE HANGER



5

The Type "P" Boll-Weevil Hanger is interchangeable with slip type hangers in any Cameron Casing Head. A primary seal of the space between casing strings is effected by resilient packing rings on the hanger. An auxiliary repackable plastic packing seal around the shank of the hanger is provided in the lower flange of the next unit, or, in an auxiliary flange as shown.

Have You Received Your Copy of This Interesting Booklet?

The "Cameron Closed Pressure Method of Drilling and Completion" explains, step-by-step, the modern method of drilling and completing high pressure wells. A copy of this booklet will be gladly sent to interested operators on request.

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Oklahoma Representative—Paul Edkin, Tulsa

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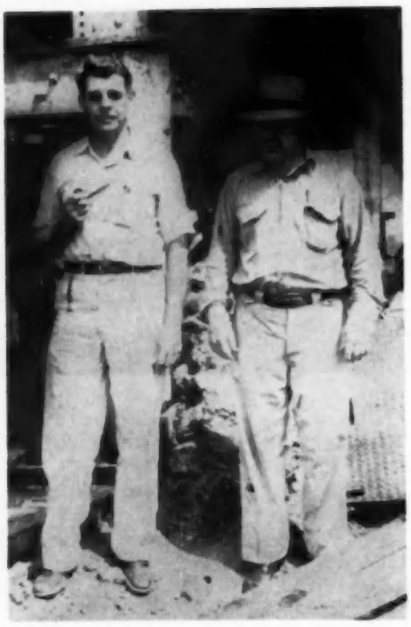
"CAMERON-IZE"



Ted Rakestraw of Tulsa is the drilling superintendent in charge for Gulf Refining Company. Red McDaniels (right), also of Tulsa, Parker Drilling Company, superintendent.

but none in producing brackets comparable to the Gartner 3.

The field produced 84,083 barrels the first 9 months this year, 19,494 barrels in 1939 and has an all-time recovery of only 127,648 barrels. It was averaging less than 400 barrels per day early in November this year.

The fact that the Trenton has not been too important in production as judged from the Deerfield play may be properly modified in view of the fact that a localized structure condition has limited its possibilities in that particular district. The structure is extremely sharp and equally narrow. It is possible that the Trenton farther into the center of the basin in more gentle anticlines will have much greater economic possibilities. Thicknesses of 200 to 600 feet have been observed in different deep tests and it is possible that the zone may be much thicker in many localities.

The St. Peters sandstone, member of the Lower Ordovician age, because it is a sand, is one of the great potential formations in Michigan. This zone never has been penetrated in the central part of the basin but wells drilled into it on the edges and general geological studies and observations have pointed to a relief of 40 to 200 feet with the formation having primarily a marine derivation.

Sun Oil Company's Kidder 1, NW NW NW 8-3n-9w, Barry County, a wildcat abandoned November 19, at 5013 feet, carried the best free-oil show logged in the St. Peters sand in the state. The deepest hole drilled this year in southwestern Michigan, it was drilled by Union Drilling Company, general contractors.

Michigan Wildcat Results

	SHALLOW AREA			REST OF STATE		
Year	Oil	Gas	Dry	Oil	Gas	Dry
[1]1940..	13	0	215	5	5	89
1939..	11	2	267	3	0	94
1938..	9	0	176	8	3	161
1937..	3	0	28	4	0	52
1936..	0	1	15	10	1	151
1935..	0	0	12	5	3	147
1934..	0	0	9	2	1	75
1933..	0	0	9	4	1	39
1932..	1	0	6	1	0	33

[1] First 10 months. None of 32 oil discoveries credited to 1939 and 1940 have opened major pools.

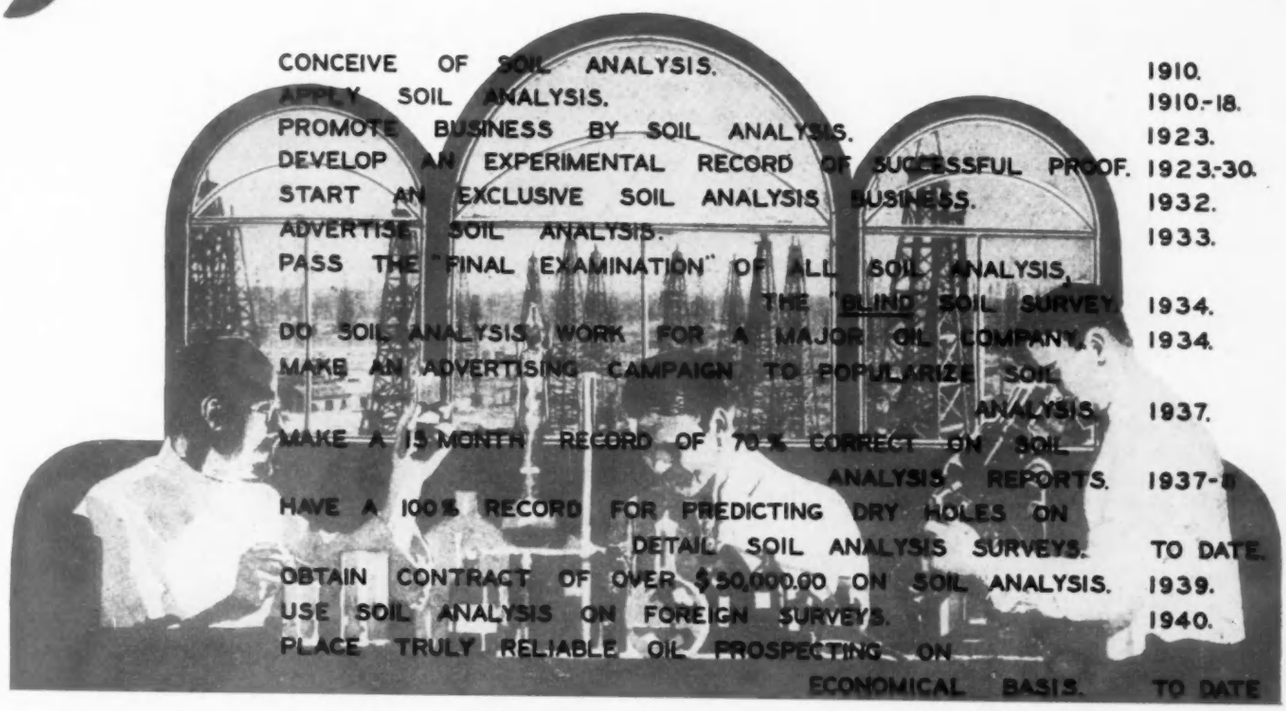
Afternoon shift on Gulf Refining Company's Michigan deep test when the old depth record of 6674 feet was broken, C. R. Jones (driller), Fred Mohr, E. E. Ripley and Kenneth Bilyeu. On the morning shift is J. E. Scarbrough (driller), C. H. Martin, F. H. Gray and H. R. Britt; and the evening crew, J. P. Wagner (driller), R. D. Wolf, Ray Linss and E. G. Todd.

W. L. Holz, engineer; Edward Baltrusaitis, geologist; and Lester LeFavour, Gulf Refining Company's Michigan district production and drilling superintendent.

Gulf Refining Company's deep hole, from the standpoint of its potential bearing on geophysical correlation alone, is highly important. If Michigan's deeper beds are to be wildcatted some method of geophysical determining of structures would be necessary. It has been a difficult and costly job to find structure, let alone closure, even on the shallow Traverse and Dundee beds. Michigan's thick glacial drift deposits, ranging from 400 to 800 feet on an average through the central basin, sets up a clean "first strike" against any geologist trying to score a hit.

This deep test comes in as important in respect to geophysical work because early geophysical tests may be checked for results on the deep beds. There has been some good indications that seismograph will prove important on the deeper beds even where work on the Traverse and Dundee has not been satisfactory. Generally, the Traverse and Dundee structures are too small and the breaks and tops are too broken to give the desired reflections for any degree of accuracy.

first to —


CONCEIVE OF SOIL ANALYSIS. 1910.
APPLY SOIL ANALYSIS. 1910.-18.
PROMOTE BUSINESS BY SOIL ANALYSIS. 1923.
DEVELOP AN EXPERIMENTAL RECORD OF SUCCESSFUL PROOF. 1923.-30.
START AN EXCLUSIVE SOIL ANALYSIS BUSINESS. 1932.
ADVERTISE SOIL ANALYSIS. 1933.
PASS THE "FINAL EXAMINATION" OF ALL SOIL ANALYSIS, THE BLIND SOIL SURVEY. 1934.
DO SOIL ANALYSIS WORK FOR A MAJOR OIL COMPANY. 1934.
MAKE AN ADVERTISING CAMPAIGN TO POPULARIZE SOIL ANALYSIS. 1937.
MAKE A 15 MONTH RECORD OF 70% CORRECT ON SOIL ANALYSIS REPORTS. 1937-8
HAVE A 100% RECORD FOR PREDICTING DRY HOLES ON DETAIL SOIL ANALYSIS SURVEYS. TO DATE.
OBTAIN CONTRACT OF OVER $50,000.00 ON SOIL ANALYSIS. 1939.
USE SOIL ANALYSIS ON FOREIGN SURVEYS. 1940.
PLACE TRULY RELIABLE OIL PROSPECTING ON ECONOMICAL BASIS. TO DATE

Blind — Soil Survey

THE RADIAL 8 LINE (32 MILE) SURVEY
FINDS & OUTLINES OIL IN ONE OPERATION.

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(SAMPLES DELIVERED TO LABORATORY)

GEOLOGICAL SCIENTIFIC SERVICE CO., INC.
FIFTH FLOOR SINCLAIR BUILDING
FORT WORTH, TEXAS

Fewer Casing Sizes in New A. P. I. Specifications

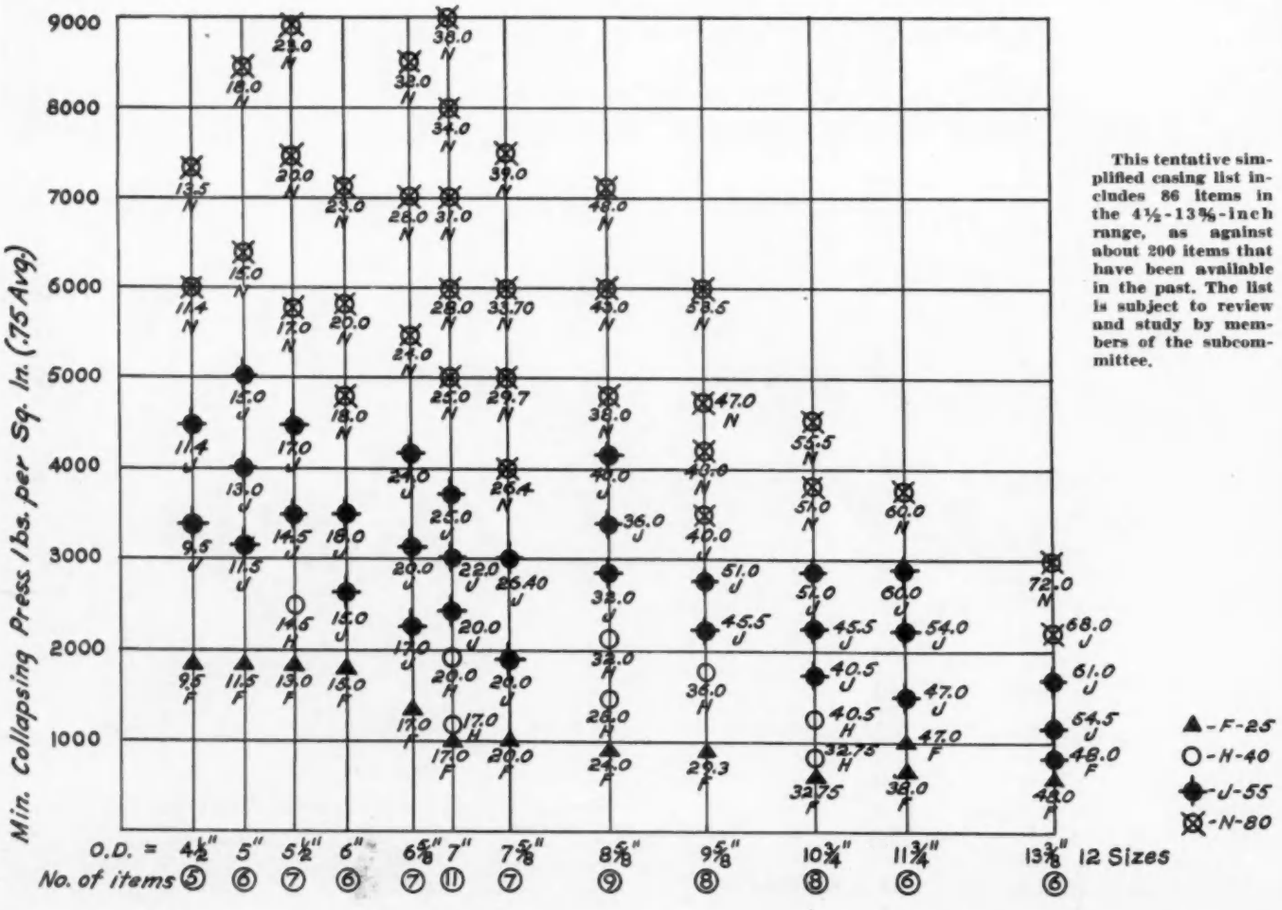
PROGRESS toward simplification of casing lists has been announced by the American Petroleum Institute, following recommendations made by its Division of Production Committee on Standardization of Oil Country Tubular Goods. Need for such a move has been felt for several years but the recent A.P.I. work was the first forceful and effective effort toward elimination of various overlapping sizes that tended to increase casing costs.

Adoption of a new casing list, designed to reduce to 86 from more than 200 the number of sizes, weights and grades of casing, was recommended by the committee at the Chicago meeting in November. The preliminary action was received favorably, but the simplified schedule was submitted for further and final ratification. The list is subject to review and study by members of the subcommittee on Simplification of Casing Lists for a period of one month, and this committee may make several revisions.

The simplified list, upon ratification, will be published in "API Standards 5-A" as a tentative schedule, but the present casing list will be retained as standard until a decision is reached to replace it with the revised list.

Recent efforts toward simplification have been centered on the size range between 4½ and 13⅜ inches in diameter, but 16- and 20-inch sizes will be included in the finished schedule. A check of all casing sizes used during the past few years between 4½ and 24½ inches in outside diameter revealed that almost 250 different items had been included, of which around 200 sizes, weights and grades were more or less common.

The list was formulated and is being revised to contain all casing that may be required for drilling oil wells to any depth. It includes all of the casing sizes now listed in Table 5 of API Std. 5-A, with the exception of the 4¾- and 9-inch sizes, which have been dropped. In the place of the deleted sizes, 4½- and 5-inch sizes have been added. In the large-size range, the 16-inch O.D. casing has been retained, while the former 18⅝-, 21½- and



This tentative simplified casing list includes 86 items in the 4½-13⅜-inch range, as against about 200 items that have been available in the past. The list is subject to review and study by members of the subcommittee.

LOOK FOR THE TIGER

THAT'S a good rule to follow when you buy wire lines. For at the sign of the tiger, you'll find stocks of the finest lines money can buy—American Tiger Brand.

You'll find the tiger displayed prominently by leading distributors throughout the oil fields. Wherever you see this familiar red and yellow sign, you know it stands for a distributor who handles quality wire lines. You know that he has on hand ample stocks of American Tiger Brand Wire Lines — supplemented by our own warehouse and mill stocks.

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Cleveland, Chicago and New York
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United States Steel Export Company, New York

AMERICAN *Tiger Brand* **WIRE LINES**

UNITED STATES STEEL

Slightly Less Drilling in 1941 Tentatively Indicated

WITH the end of an exceptionally active year of drilling near, plans for development next year have come under consideration; and preliminary investigation indicates that somewhat fewer wells may be drilled in the United States in 1941 than in 1940.

This tentative conclusion is based on information supplied by a group of oil companies, limited in number yet constituting a fairly good cross section of the industry.

In most instances involved, the companies indicated that they expected to drill in 1941 either approximately the same number of wells as in 1940 or not quite as many.

The information obtained privately, and confidentially as to plans of individual companies, has been supported, moreover, by the obvious inferences drawn from statements made public recently by several companies.

It logically may be assumed, for example, that some curtailment of drilling is contemplated by the operating subsidiaries of Standard Oil Company (New Jersey), which alone constitute a substantial proportion of the industry, in view of a statement made by that concern recently in connection with the payment of a dividend to stockholders.

Elaborate Forecast to Appear in Yearbook Number

This discussion of the outlook for drilling in 1941, offered along with the record for the first 11 months of 1940, is preliminary in nature, being based on significant but incomplete information.

The elaborate detailed annual forecast of this publication, based on information supplied by hundreds of large and small companies and operators, and showing prospects by states and districts, will be embodied as usual in the Yearbook-Forecast number, to be published January 27, 1941.

"The management," read the statement, "in common with other American industries carrying on business abroad, has faced an ever-growing number of complications as the tide of war has swept over Europe. Because of the difficulty of shipping any crude and products, our European business has been seriously curtailed; in some countries it has practically ceased.

"This situation naturally reflects in current earnings, which will be considerably less for the last half of 1930 than were reported for the first half of the year.

"In the domestic market, fortunately, the company has enjoyed an increased volume of business, but price declines in recent months have depressed earnings below previously prevailing levels. Consideration of these factors has made it seem advisable to reduce the extra dividend below that paid in June for the first half of the year." (Directors voted an extra cash dividend of 25 cents at the time of this statement, compared with 50 cents in June.)

"Similar considerations," significantly continued the statement, "have also led to the budgeting of minimum capital expenditures over next year."

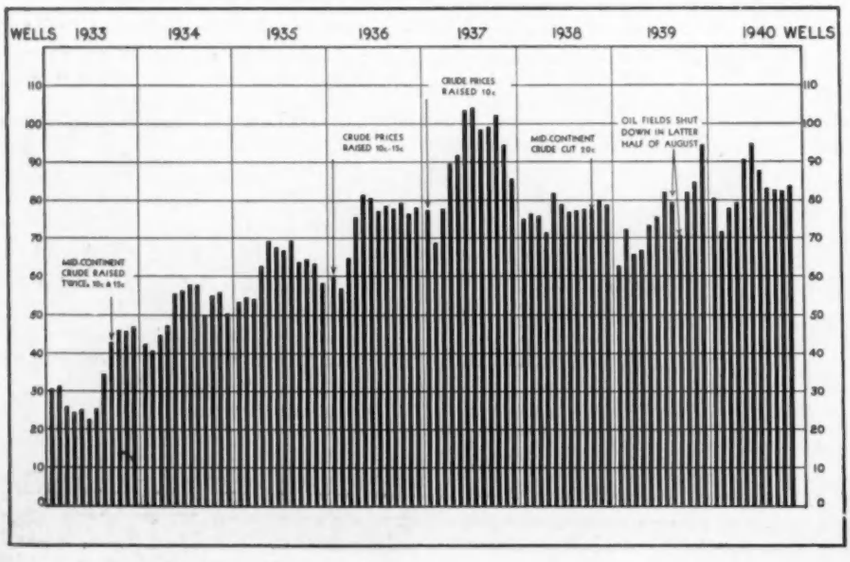
Humble Oil & Refining Company, 75 percent owned by Standard Oil Company (New Jersey), similarly embodied recently in a letter to those from whom it purchases crude oil an analysis of market conditions that indicated the future might bring reductions of crude prices in Texas, unless proration inequities were eliminated; and crude price reductions logically would retard drilling.

Various reasons have been given for expecting a possible let-down in drilling in 1941. The dominant factor is the European war, which will exert a retarding influence in several ways, particularly by holding down petroleum exports and thereby adversely influencing oil markets and prices and by forcing conservation of cash upon the larger American oil companies that have sustained important losses of properties and trade through bombing and otherwise in Europe.

Indirectly, the war also will tend to restrict drilling insofar as it will cause higher taxes for the oil companies in support of the national defense program and insofar as higher costs of materials and operations may result from that program.

Business in general in the United States, always an important influence on the fortunes of the oil industry and indirectly upon drilling, will be shaped to a large extent itself, by the war. And although high rates of industrial and commercial activity accompanying the defense program will be conducive to

Average Daily Well Completions in U. S., by Months



THIS "PLUG" PAYS OFF...
because it's made of NEOPRENE!

Story and Pictures Courtesy Hunt Tool Co., Houston, Texas

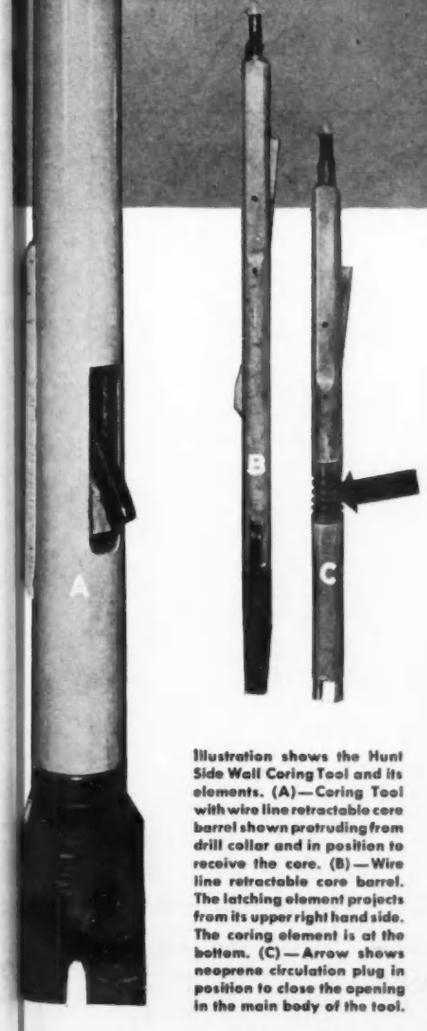


Illustration shows the Hunt Side Wall Coring Tool and its elements. (A)—Coring Tool with wire line retractable core barrel shown protruding from drill collar and in position to receive the core. (B)—Wire line retractable core barrel. The latching element projects from its upper right hand side. The coring element is at the bottom. (C)—Arrow shows neoprene circulation plug in position to close the opening in the main body of the tool.

THE JOB of the circulation plug in a side wall coring operation requires a *tough* material! This element plugs off drilling fluid while they're drilling ahead or reaming. To do this, it has to face a whole mess of trouble . . . oil, gas, abrasion, even destructive chemicals. You wouldn't expect a resilient material to last very long under such conditions!

The Hunt Tool Company were determined to find a material that *would* stand up longer than the one they were using. They tried rubber and other materials for their plugs. But none of them were tough enough to stand the gaff. Either the abrasive drilling fluid under high slush pump pressure wore them out too quickly, or the oil and gas in the slush near the cored points weakened them to such a point that they could not function effectively.

Then they specified neoprene. Service records began to prove the remarkable wearing qualities of this famous Du Pont chemical rubber. Now neoprene plugs are standard equipment. And they do an effective job . . . despite sand, shale and other abrasive cuttings . . . despite the constant attacks of oil and gas . . . despite even the chemical reaction of the drilling fluid!

Wherever the going is *extra*-tough, you'll find neoprene. This remarkable chemical rubber made by Du Pont has many of the advantages of natural rubber . . . strength, elasticity, and toughness. But products made of neoprene have *extra* advantages . . . resistance to oil, heat, aging, sunlight, and many chemicals. For nine years the oil industry has taken advantage of these longer-lasting, money-saving properties. That's why, today, the oil industry as a whole has virtually standardized on neoprene for its tools and equipment.

Have you read the interesting *Neoprene Notebook?* Write for your free copies and get up-to-the-minute information about neoprene and neoprene products. E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Division, Wilmington, Delaware.

DU PONT
NEOPRENE
the chemical rubber

good demand for petroleum products, that demand will not necessarily call for the drilling of an exceptionally large number of wells, particularly in view of the record-breaking number of wells currently on production and the rigid restrictions on output of the wells already drilled.

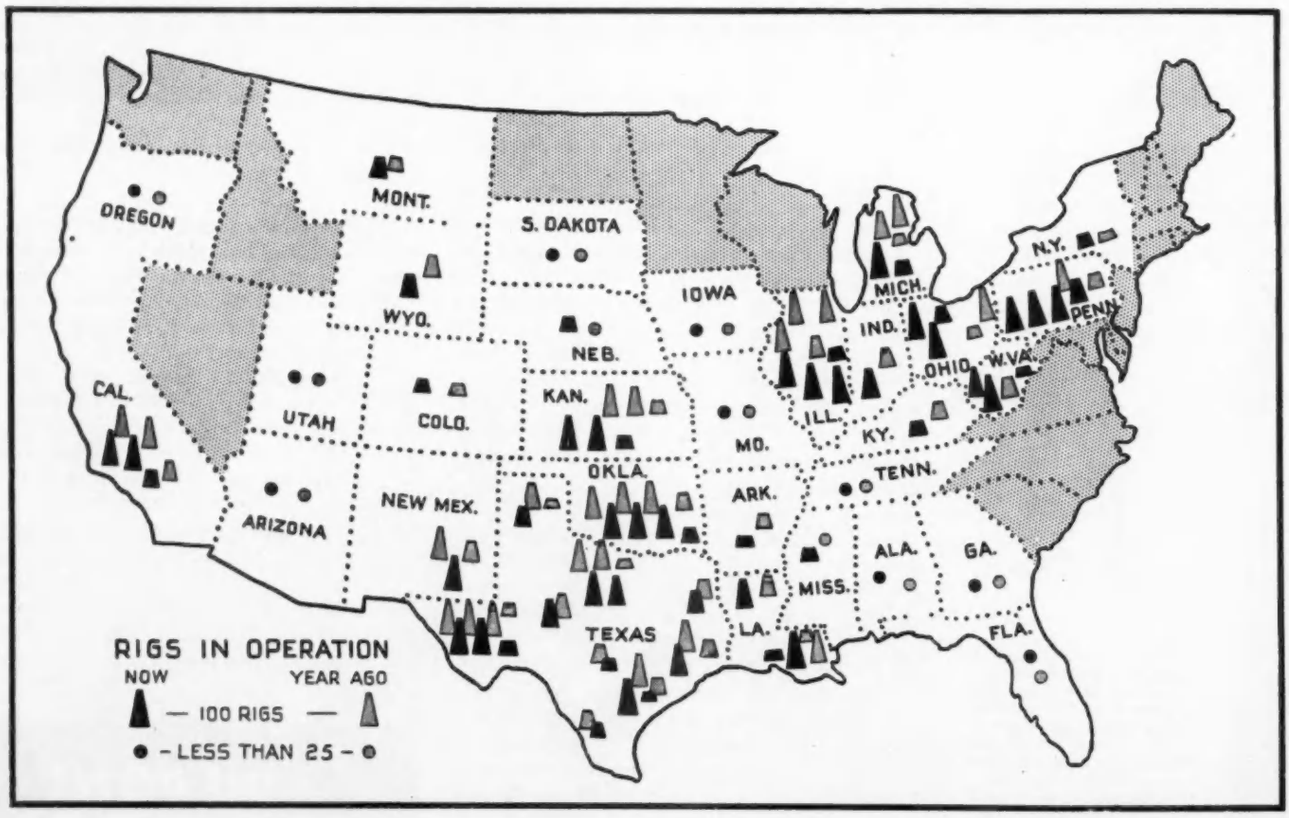
The course of drilling in the coming year will be affected not only by the war and the general business situation but also by conditions within the oil industry itself. And the outlook for the industry remains uncertain, despite some indications that earnings of oil companies, on the decline since the early part of this year, may henceforth gradually improve. Still a serious problem is the large surplus of gasoline in storage, although good results have been achieved in recent weeks in holding weekly additions to storage to subnormal amounts. Gasoline stocks reached an all-time peak last spring and the large surplus which was embodied caused a weak market that has prevailed until now. A repetition of the 1940 experience is threatened, moreover, for 1941, as the industry may have difficulty in avoiding a build-up of the gasoline inventory to a peak about equaling that of last spring. Continued weakness of the gasoline market naturally would have

More Rigs in Use Now Than Month Ago or Year Ago

STATE OR DISTRICT	TOTAL RIGS IN OPERATION Drilling Rigs, Up, Shut Down				DETAILS OF DECEMBER 1, 1940 FIELD ACTIVITY					
					Rigs in Operation			Prelim. Activity		
	Year Ago (Dec. 1, 1939)	Month Ago (Nov. 1, 1940)	Now (Dec. 1, 1940)	Percent Change From Year Ago	Drilling	Rigs Up	Shut Down	Derricks	Locations	Total Operations
Alabama	2	7	5	+150.0	3	...	2	...	1	6
Arizona	8	7	7	— 12.5	1	...	6	1	...	8
Arkansas	42	24	24	— 42.9	14	5	5	2	2	28
California	273	279	268	— 1.8	173	58	37	...	50	318
Colorado	33	36	27	— 18.2	10	...	17	...	1	28
Florida	3	4	4	+ 33.3	1	1	2	...	...	4
Georgia	...	2	4	.....	2	...	2	...	...	4
Illinois	372	332	333	— 10.5	272	39	22	...	23	356
Indiana	67	85	88	+ 31.3	43	5	40	...	14	102
Iowa	2	3	2	.....	2	...	...	...	1	3
Kansas	228	229	242	+ 6.2	197	23	22	10	7	259
Kentucky	66	53	54	— 18.2	33	3	18	...	4	58
Louisiana	214	212	227	+ 6.1	180	18	29	37	36	300
North Louisiana	80	92	106	+ 32.5	77	12	17	30	6	142
South Louisiana	134	120	121	— 9.7	103	6	12	7	30	158
Michigan	228	127	148	— 35.1	88	20	40	11	28	187
Mississippi	24	35	31	+ 29.2	20	3	8	3	3	37
Missouri	22	17	16	— 27.3	6	1	9	1	1	18
Montana	47	61	72	+ 53.2	30	1	41	...	1	73
Nebraska	10	44	35	+250.0	18	1	16	3	4	42
New Mexico	168	114	102	— 39.3	62	8	32	...	8	110
New York	60	41	48	— 20.0	35	5	8	3	9	60
Ohio	130	252	252	+ 93.8	168	44	40	15	39	306
Oklahoma	347	295	340	— 2.0	256	46	38	28	21	389
Oregon	1	1	1	.....	...	...	1	...	...	1
Pennsylvania	159	351	378	+137.7	282	25	71	27	68	473
South Dakota	2	1	1	— 50.0	...	...	1	...	...	1
Tennessee	9	7	11	+ 22.2	7	...	4	...	1	12
Texas	1,300	1,007	1,010	— 22.3	780	69	161	61	288	1,359
East Texas Field	12	13	20	+ 66.7	11	7	2	6	3	29
East Texas Border Counties	9	11	12	+ 33.3	6	2	4	2	2	16
Rest of East Texas	37	47	42	+ 13.5	23	...	19	9	4	55
North Texas	225	199	194	— 13.8	159	7	28	7	48	249
South Texas	301	217	222	— 26.2	169	22	31	18	110	350
Corpus Christi Area	163	117	120	— 26.4	93	15	12	11	70	201
Laredo Area	76	60	59	— 22.4	48	2	9	5	28	92
San Antonio Area	62	40	43	— 30.6	28	5	10	2	12	57
Texas Gulf Coast	169	98	102	— 39.6	90	7	5	10	27	139
Texas Panhandle	121	70	78	— 35.5	59	6	13	1	12	91
West Texas	339	250	243	— 28.3	198	17	28	8	62	313
West Central Texas	87	102	97	+ 11.5	65	1	31	...	20	117
Utah	3	9	8	+166.67	1	...	7	...	...	8
West Virginia	97	219	217	+123.7	148	34	35	13	36	266
Wyoming	64	67	75	+ 17.2	36	3	36	...	6	81
Total United States	3,981	3,921	4,030	+ 1.2	2,868	412	750	215	652	4,897

Drilling Rigs in Operation Now as Compared with Year Ago, by Districts

This map-chart is based on detailed figures shown in an accompanying table.



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an adverse effect on the crude market and thus indirectly affect drilling.

Another situation in the industry which threatens to be reflected in the statistics on drilling is the excess of wells available for producing the volumes of crude currently needed. In recent years, the number of producing wells has increased continuously and more sharply than expansion of market demand has warranted. Consequently, average daily allowable production per well, under proration, has progressively decreased until at least a part of the incentive to drill new wells has been dissipated. In 1940 the increment in producing wells has been exceptionally large, as about 22,000 oil wells are included in the total of approximately 31,000 completions indicated for the year; and conversely, the diminution of per well allowables has been exceptionally sharp.

Particularly in Texas, which has been accounting for nearly a third of the well completions in the United States, declining well allowables may be expected henceforth to retard drilling, as they already have done. Even this year the meager quotas doubtless were largely responsible for the fact that the state's drilling was up only 4.5 percent, on the basis of results in the first 11 months, as compared with an increase of nearly 13 percent for the United States as a whole.

Preliminary information on other states and districts is inconclusive in some instances. But Illinois, second most active state in 1940, is generally expected to show a substantial decrease in well completions in 1941, because of the failure to find important new fields, following a 5 percent increase this year. And it is doubtful if the indicated Illinois decline will be fully compensated by development in Kansas, Oklahoma, and other sections of the Mid-Continent that will fall heir to markets relinquished by Illinois.

November Results

Drilling was maintained in November on approximately the same scale as in the preceding three months, well completions having averaged 83.8 daily, as compared with 82.2 in October, 82.7 in September, and 83.1 in August. The steady development was normal, as wells frequently are completed with considerable regularity in the closing months of the year.

The November completions also closely approximated those of November last year, although there was a spurt in drilling in late 1939, because of the excitement that followed outbreak of the European war.

In the first 11 months of this year, 28,024 wells were completed in the United States, or 12.8 percent more than the 24,844 finished in the corresponding months of last year.

Rigs in operation in the whole country on December 1 totaled 4030, the number having increased 109 over the 3921 active on November 1 and 209 over the 3821 reported for October 1. The December 1 total also was somewhat larger than that of 3981 for the corresponding date a year ago. These figures embody wells actually drilling, rigging up, or temporarily shut down, and are based on reports obtained by this publication's staff men throughout the country.

Wells Completed in November at About Same Daily Average Rate as in Preceding 3 Months; Completions Up 12.8 Percent for First 11 Months

STATE OR DISTRICT	MONTHLY COMPLETIONS: Total — Year Ago (Nov., 1939)[2]	Month Ago (Oct., 1940)[3]	Latest Data (Nov., 1940)	Details for November, 1940[1] — Oil	Gas	Dry	Initial Oil Production	CUMULATIVE COMPLETIONS: First 11 Months — Total 1939	1940	Percent Change	Details for 11 Months of 1940 — Oil	Gas	Dry	Initial Oil Production
Alabama	1	2	1	....	....	1	.....	.....	9	.....	.....	.....	9	.....
Arizona	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Arkansas	14	15	9	7	....	2	1,235	213	166	— 22.1	113	8	45	31,591
California[4]	101	87	74	67	1	6	61,694	904	968	+ 7.1	805	14	149	733,037
Colorado	1	1	1	1	....	....	3	18	8	— 55.6	3	.....	5	303
Florida	....	....	....	....	....	....	.....	.....	1	.....	.....	.....	1	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	371	320	283	215	4	64	42,688	3,450	3,621	+ 4.9	2,950	23	648	2,550,165
Indiana	43	46	71	36	12	23	4,584	257	474	+ 84.4	235	61	178	32,769
Iowa	.....	.....	1	.....	.....	1	.....	.....	1	.....	.....	.....	1	.....
Kansas	119	155	162	123	6	33	177,114	1,313	1,823	+ 38.8	1,409	53	361	2,159,665
Kentucky	57	38	40	22	1	17	927	593	338	— 43.0	158	8	172	9,596
Louisiana	114	151	151	97	13	41	19,563	1,036	1,555	+ 50.1	1,119	91	345	268,243
North Louisiana	32	77	65	43	9	13	5,458	302	595	+ 97.0	411	75	109	45,084
South Louisiana	82	74	86	54	4	28	14,105	734	960	+ 30.8	708	16	236	223,159
Michigan	123	88	103	39	9	55	5,494	1,331	1,115	— 16.2	538	61	516	102,975
Mississippi	1	8	20	16	....	4	5,930	13	173	+1,230.8	90	1	82	50,629
Missouri	7	8	6	....	1	5	.....	75	80	+ 6.7	3	26	51	33
Montana	11	18	11	11	....	....	1,320	125	165	+ 32.0	123	16	26	13,441
Nebraska	1	9	18	11	....	7	8,006	2	39	+1,850.0	18	.....	21	11,662
New Mexico	57	34	40	33	1	6	7,956	595	586	— 1.5	460	16	110	167,720
New York	[6]69	[6]63	[6]36	[6]34	1	1	152	[6]576	[6]870	+ 51.0	[6]852	8	10	3,218
Ohio	98	98	140	39	71	30	397	880	985	+ 11.9	395	338	252	4,165
Oklahoma	161	147	183	113	19	51	24,863	1,881	1,938	+ 3.03	1,100	156	682	274,544
Pennsylvania[5]	[6]230	[6]260	[6]264	[6]217	38	9	291	[6]2,216	[6]3,392	+ 53.1	[6]3,017	239	136	4,752
South Dakota	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
Tennessee	.....	.....	3	1	....	2	24	4	11	+ 175.0	4	1	6	857
Texas	730	673	705	497	18	190	298,130	8,632	9,018	+ 4.5	6,524	271	2,223	3,760,167
East Texas Field	18	31	34	34	....	....	59,859	403	283	— 29.8	270	.....	13	533,453
Rest of East Texas	22	30	27	10	2	15	1,802	289	261	— 9.7	115	46	100	32,011
North Texas	178	169	194	123	1	70	55,289	1,562	1,990	+ 27.4	1,343	11	636	719,444
South Texas	196	160	171	112	4	55	58,360	2,490	2,372	— 4.7	1,492	70	810	581,411
Corpus Christi Area	95	85	84	65	2	17	37,127	1,223	1,173	— 4.1	842	33	298	439,886
Laredo Area	80	62	65	34	2	29	7,867	909	963	+ 5.9	563	34	366	120,559
San Antonio Area	21	13	22	13	....	9	1,297	358	236	— 34.1	87	3	146	8,897
Texas Gulf Coast	88	77	89	72	2	15	17,124	1,198	1,109	— 7.4	880	24	205	224,713
Texas Panhandle	53	42	40	31	4	5	6,774	395	579	+ 46.6	454	83	22	134,506
West Texas	148	119	103	94	2	7	94,873	1,861	1,769	— 4.9	1,636	13	120	1,463,195
West Central Texas	27	45	47	21	3	23	4,049	434	655	+ 50.9	314	24	317	71,434
Utah	.....	1	.....	.....	.....	.....	.....	.....	3	.....	.....	1	2	.....
West Virginia	58	63	69	10	43	16	94	523	556	+ 6.3	108	354	94	790
Wyoming	10	17	5	5	....	....	792	114	128	+ 12.3	101	4	23	79,178
Total United States	2,377	2,302	2,396	1,594	238	564	661,257	24,844	28,024	+ 12.8	20,125	1,750	6,149	10,259,500

[1] Wells completed in 4 weeks, or 28 days, ended November 23, 1940. [2] Wells completed in the 4 weeks, or 28 days, ended November 25, 1939. [3] Wells completed in the 4 weeks, or 28 days, ending October 26, 1940. [4] California completions except for November, 1940, revised in accordance with the American Petroleum Institute. [5] Bradford, Pennsylvaina, completions except in November, 1940, revised in accordance with The Producers Monthly. [6] Includes water-intake wells.

DRILLING CONTRACTORS' NOTEBOOK

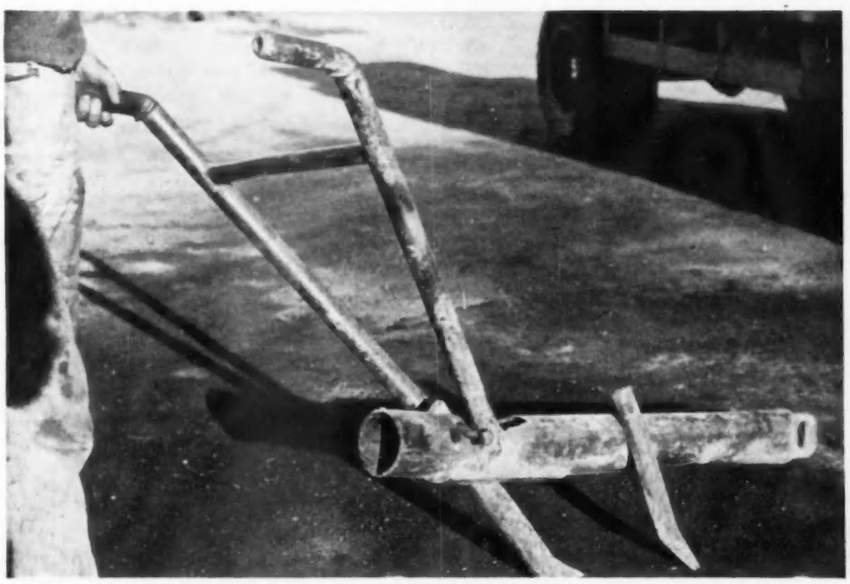
Helpful Suggestions For Those Interested In Drilling Methods

Operating Ideas Maintenance Hints New Rig Hook-ups

Published as a regular feature of THE OIL WEEKLY

1. PIPE LAYING

Plow-Type Tool Used to Break Hard Ground for Pipe Around Rig and Lease



This device is used to break hard ground before laying pipe lines on the lease.

FIELD crews breaking ground for construction work and laying of new pipe around the lease often encounter extremely hard ground surfaces, such as old roads, equipment yards and hard-pan. A majority of the cases, particularly those involving pipe-laying, are not of sufficient extent to warrant employment of a mechanical digger, and the job usually is done entirely with pick and shovel.

A field crew member of one company, with the aid of the company welder, built a simple road-ripping tool that cuts down considerably on field work construction costs and saves unnecessary work on the part of the men.

It consists of a 4-foot length of extra-strength 4-inch pipe equipped with a digging tool that can be handled by one man while it is being pulled by a field truck or light tractor. Two interchangeable digging teeth, cut from ½-inch steel plate, sharpened and hardened at the pointed ends, are used. A steep dipping point is used for deeper work, and on jobs where an extremely tough surface is being ripped up. Another tooth is used to break and lift slabs of hard material, and where a more shallow cut is desired.

Near the point where the 1½-inch pipe handle bars were welded to the body of the tool, a forward-slanting slot, of size to assure a snug fit for the shank of each tooth was cut in the pipe. A ½-inch bolt passed through a horizontal hole cut through the upper part of the circumference of the pipe, and through a hole in the upper end of the shank of the tooth, holds the two firmly together while the tool is in service. A heavy steel lug was welded to the front end of the pipe, to which the pulling cable or chain can be fastened.

The small size of the tool enables it to be maneuvered into many out-of-the-way corners around the lease, and when not in use or while being hauled the extra teeth can conveniently be carried inside the pipe. Power for operating the tool usually is supplied by the supply truck that normally carries the crew and accompanies it throughout the day.

2. FUEL SUPPLY

Tank Foundation Has Skid Base

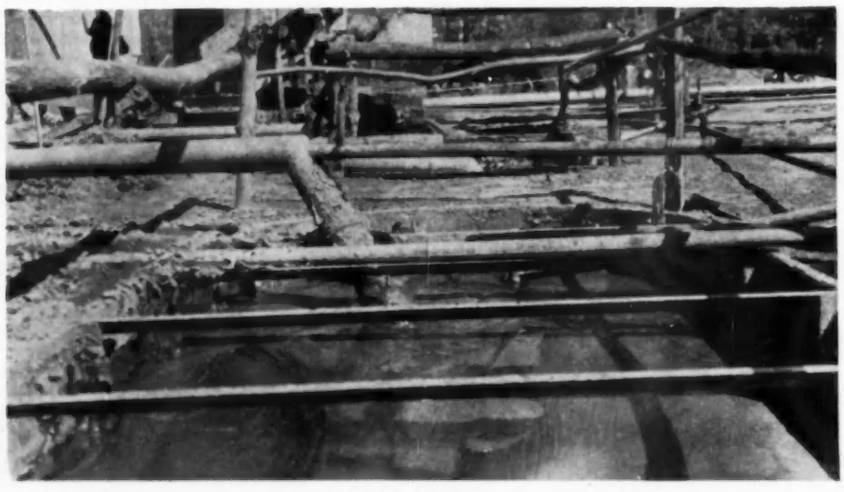
A FOUNDATION with skid-type side members facilitates handling of a Diesel fuel tank. The structure has several top cross members of pipe to support the tank, and side members are equipped with holes for tie-down straps that loop over the tank. Lower members of the structure are built with skid ends so the entire assembly may be moved.

This fuel tank foundation has a skid base to facilitate moving the assembly.

DRILLING CONTRACTORS' NOTEBOOK

3. MUD HANDLING

Steel Tanks Used for Drilling Mud Where Ground Conditions Are Unfavorable



Unfavorable ground conditions make advisable use of steel tanks for mud pits.

SPECIAL steel tanks are used for drilling fluid at this location in Oklahoma's Cumberland field, where deep sand but slightly packed would allow normal pit walls to cave and rob the fluid of much of its water.

Three steel tanks have been buried so that tops are level with the surface. Corners are rounded so that no eddy forms to settle out heavy particles unevenly.

Clamped in a corner of the derrick and powered by feed-water pumps, this hydraulic lift serves many jobs that otherwise would require several crew members.

4. RIGGING UP

Hydraulic Lift For Derrick Floor

MANY of the jobs which normally require use of a catline and the services of two or more of the floor crew may be handled by a lift which utilizes the pressure stored within the feed water system to operate a hydraulic plunger.

Standing on one corner of the derrick, diagonally opposite the mud standpipe, a 30-foot length of 4-inch pipe serves as cylinder of the lift, while an additional thirty feet of pipe serves as upper guide for the piston rod which carries a wire line and transmits the upward thrust of the piston into lifting force at the floor.

Dual control valves at a convenient height from the floor permit the lift to be raised any desired height within its stroke, to be held there until released by draining off the water which serves as supporting medium.

A short length of chain, spliced into the end of the wire line and terminating in a hook, provides for quick attachment to the material to be lifted, and serves to anchor the line between lifts.

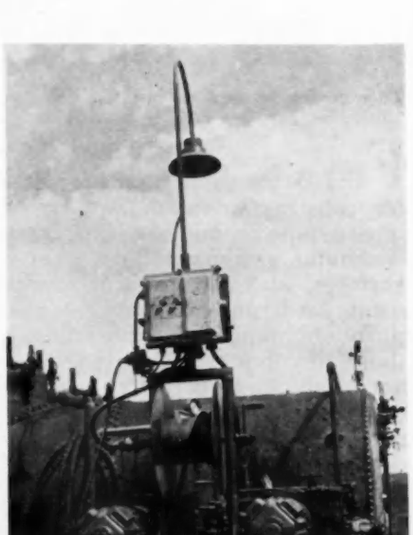
5. LIGHTING

Generators Rigged For Convenience

A COMPACT and trouble-free mounting of two lighting generators on one base permits carrying the light control between them, with a double switch providing instant change from one unit to the other.

By making an opening in the pedestal upon which the switch boxes are mounted, a reel may be carried for winding the service cable when not in use.

An easily removable extension above the switches carries the light standard for the unit, and permits quick disconnecting for reduction of overall height when making a rig shift.



Reel and stand mounted between twin generators permit unitization of entire wiring set-up, with cable to drilling rig wound on drum between locations.

HIGHLIGHTS IN THE WEEK'S NEWS

Washington

Threaten Higher Tax to Reduce Gasoline Use

Possibilities that it may be found desirable to increase the taxes on gasoline and certain other commodities for the express purpose of curtailing mass luxury consumption as the nation becomes fully geared to the war effort were raised last week in a report on taxation, recovery and defense submitted to the Temporary National Economic Committee by its executive secretary, Dr. H. Dewey Anderson.

Pointing out that present federal, state and local tax structure will impose a tax burden of some $15,000,000,000 upon the country this year, Dr. Anderson advocated an immediate exhaustive overhauling of the whole question as essential if the United States is to survive the defense program and the reorganization which must follow upon the return of peace.

"If a well-devised system of taxation is employed to complement other methods of price control and organization of the wartime economy," he declared, "it is possible that at the close of the war, the national debt will not be unbearable. Mass purchasing power will be available to cushion the transition of the economy from a war to peacetime level, and the inevitable deflation will be kept within limits which will not threaten the very life of the nation. The accumulation of unsolved problems which burden us as we enter the present preparedness era makes it imperative that we find some fundamental solution both for them and for others which loom ahead."

Dr. Anderson foresaw that the defense program will reach a point of full employment, when it will become necessary to regulate or curtail the consumption of certain goods. When that point is reached, the gasoline and other taxes may have to be raised.

Tightening of Restrictions on Gasoline Exports Indicated

Tightening up of regulations restricting export of gasoline, to prevent the outward movement of all types which may be usable for aviation, was seen in Washington last week as likely of adoption in the near future.

The possibilities of further restrictions on shipments were intimated by Colonel Russell L. Maxwell, administrator of export control, in a summation of four months of control over the exportation of aviation motor fuel, released December 3 by the National Defense Advisory Commission.

Maxwell did not suggest the adoption of new restrictions in his statement. However, he did call attention to the fact that while aviation gasoline of 87-octane rating or higher is being "conserved" by the restrictions on exports, no control is being exercised over lower-octane fuel.

"The progress being made in the very difficult problem of satisfactorily controlling the export of aviation motor fuel is indeed gratifying," he said.

"The biggest problem to date has been one of definition. Every attempt is being made to minimize restrictions on the petroleum export industry, by limiting control to those types of fuel and oil used exclusively for airplanes. More than adequate supplies at all other type being, of course, available.

"In the regulations which accompanied the presidential proclamation of July 26, the export licensing system was limited to motor fuel with an octane rating 87 or higher. This conserved the high test gasoline necessary for our military planes, but permitted the exportation of motor fuel with an octane rating of less than 87. This type is not normally produced for aviation purposes but it is usable in some types of foreign aviation motors.

"An announcement, released shortly after the issuance of the proclamation, permited export of high-test gasoline (over 87 octane) only if destined for the Western Hemisphere, the British Empire, or American-owned companies or concessions in other countries.

"Petroleum being the complex mixture, knowledge of the exact nature of petroleum products has lagged considerably behind the knowledge of their performance and application. Continuous study and collaboration with other government agencies, as well as American exporters, is necessary to insure the adequate controls required for defense purposes, without unnecessary constriction of foreign trade."

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Compact

Compact Renewal Request Indicated at Tulsa Meet

Excellent attendance from a large number of the oil-producing states marked the final 1940 meeting of the Interstate Oil Compact Commission at Tulsa, which began on Friday, December 6. Representatives were present from all states which are members of the compact, and observers were on hand from Wyoming and Louisiana.

Up for consideration was renewal of the compact law. Final disposition of this was expected on Saturday. While a group of independents and some members of the compact favored inclusion of some clause that would require production according to federal allocations by the United States Bureau of Mines, the membership generally opposed this plan, and it was expected that Congress would be asked to renew the compact in its present form.

The meeting also marked the expiration of the chairmanship of Governor Leon Phillips of Oklahoma. It was expected, however, that he would be reelected and would serve next year.

Joseph E. Pogue, member of the advisory committee on economics to the compact, discussed "The Principles of Allocation in Oil Conservation," while A. G. White, chief of the petroleum economics division of the United States Bureau of Mines, spoke on the market situation. Pogue's address appears in full beginning on page 12, while a separate story covering White's address appears in this section.

Committees were in session before the meeting began and continued work during recesses. These included committees on the compact law itself, one group working on uniform engineering practices, a committee on standard operating regulations, and another attempting to draft a model conservation law to be recommended for general adoption. This committee announced it had found the conservation laws of Louisiana and Arkansas the best to use as a working basis.

Congressman Wesley Disney of Oklahoma told the group that the reason nothing has been done in Congress to reduce imports was that the measure lacked uniform support from all members from oil states. He decried passage of an amendment reducing the 27½ percent depletion allowance, and anticipated renewal of efforts to pass the Cole bill providing for federal control.

Opposition to federal control of the oil industry was voiced by former Congressman Sam Pettengill who characterized the Tulsa meeting as a concrete example of "opposition to totalitarianism." He told the oil men that if Washington took over, the struggle would not be between the states, but between coal and oil, coal and gas, to see which would get the fuel market. He pointed to the German production quotas as an example of what might be expected, and predicted the standard of living would decline if this procedure is followed.

Speaking for the Independent Petro-

leum Association of America, Frank Buttram, president, urged reduced runs to stills.

"The general demand situation appears favorable for the first quarter of the year," he said. "In view of the large stocks of gasoline, however, a moderate output is necessary. In the October report we made, this committee estimated that the rates recommended for the last quarter of the year would probably be required throughout the first quarter of 1941. As output during the last quarter has been substantially greater than the estimate of this committee, the estimate for the first quarter has been revised in order to balance supply with demand and provide for a gasoline stock position of approximately 88 to 90 million barrels on March 31, 1941, the following production rates are estimated as necessary: east of California, 2,850,000 barrels daily; California, 550,000 barrels daily; total, 3,400,000 barrels daily. Although these estimates may appear low to some, they do not provide for any reduction in crude oil stocks," Buttram concluded.

Representing the compacting states at the meeting were Governor Leon Phillips, Oklahoma; A. F. Schoeppel, Kansas; Hiram Dow, New Mexico; Warwick Downing, Colorado; P. J. Hofmaster, Michigan; Jack Coyle, Illinois, and J. C. Hunter, Texas. Attending as observers were B. A. Hardey, Louisiana conservation commissioner; H. P. Kerr, attorney general of Wyoming; F. R. Fry, Michigan petroleum engineer; Olin Culberson, railroad commissioner-elect from Texas; A. Andreas, New Mexico state geologist; Roy McGinnis, state oil inspector of Colorado, and G. W. Holland, Department of the Interior, Washington.

It appeared that compact committees would be more active in the future than they have been and that the organization would move forward steadily and become more powerful than it has been in the past.

White Predicts 6 to 9 Percent Gain in Gasoline Demand

Forecast of an increase in demand for gasoline in 1941 which will run at least 6 percent, maybe 7 percent and possibly as much as 8 or 9 percent higher than in 1940, was made by A. G. White, chief of the petroleum economics division of the United States Bureau of Mines, before the Interstate Oil Compact Commission in Tulsa Friday.

White forecast a general increase in demand for all petroleum products as a result of the preparedness program, and while he evidently felt no concern as to the ability of the industry to produce any required amount of crude oil, he did indicate that in his mind there was some concern as to the ability of the refining industry to handle the peak load which may come. He referred to the refined products storage situation in terms which indicated too great a supply of gasoline and distillate and too low a supply of fuel oil.

Crude production in 1940 however, he said, had been running at too high a level to warrant the thought that gains in consumption in 1941 will mean that similar increases in production will be necessary. Refinery runs of an average of 3,700,000 barrels per day will be necessary to provide required refined products, he said, and added that for the first quarter of 1941, the average daily runs should be not less than 3,500,000 barrels.

Asked privately, following his address, by THE OIL WEEKLY, he said that he did not believe that the defense program or possibility of war would make necessary any increases to crude stocks.

"There is no reason to increase or reduce crude stocks as a result of the defense program or threat of war," he declared.

"However, if it should become apparent that the summer demand for gasoline will be very high, an increase in stocks might not be out of line."

In this conversation, he said he believed that the demand for crude during the first quarter of 1941 would be 3,600,000 to 3,640,000 barrels per day.

White expressed the opinion that it would be unnecessary, and probably unwise, to increase crude production during the first quarter of 1941 to supply the additional crude needed. He said that the weather report for oil was "Cloudy, but may clear" during the remainder of this year and the first quarter of next. Current trends of the industry are out of step with the season. For those reasons it is impractical to estimate demands accurately.

To predict, he said, it is necessary to predict what is going to happen for the entire year of 1941. In reviewing 1940, he pointed out that the new demand for aviation gasoline is modifying the estimates of demand for motor fuel. Aviation demand is growing constantly, and defense needs must be considered. Storage of about 3,000,000 barrels of aviation gasoline has been recommended; whether this is sufficient is unknown. Neither is it known whether this is finished or unfinished gasoline. Therefore, the two grades must be lumped together in making estimates. About 1 or 2 percent should be added to demand for military needs.

On this basis, total demand will be up 6, 7, 8 or perhaps 9 percent.

"We started 1940 with excess gasoline stocks to prepare for war demands," White said. "Too much gasoline was manufactured, and too little fuel. This was accomplished on a yield of 45 percent. There was a sharp decline in the foreign demand for all oils, and the scramble for distillate and residual oils disrupted the market further. There we started with an unbalanced situation.

"Conditions were abnormal as the second quarter began, with stocks of gasoline too high and fuel stocks too low. Now we have 9,000,000 or 10,000,000 barrels more of distillate on hand than we had at the same time last year. It may be enough. This gain resulted from lost markets rather than deliberate planning.

Bureau Estimates

"The bureau estimates of demand for the first quarter were too high, but they were accurate thereafter. The domestic demand for crude in 1940 was 1,334,000 barrels daily, and it will be about 1,311,000 barrels during 1941. The forecasts should be consistently lower than the actual demand to prevent the excess runs resulting from extreme optimism.

"This year, for the first time, the industry itself corrected its position to some extent during the second quarter of the year by reducing its production. Operations for the year were about as good as could be expected. Total stocks are not excessive, but the large gasoline stocks have had a depressing effect on prices.

"Stocks are up about 45,000,000 barrels; and this should be used to supply the increased demand anticipated. It may make up half the total increase expected.

"Production should not be stepped up until the new demand is determined," he said.

"Exports of 1939 totaled 189,000,000 barrels, but dropped to 128,000,000 in 1940. Imports totaled 59,000,000 barrels the first year and increased to 82,000,000 barrels this year. Thus, the net exports were 130,000,000 barrels in 1939, and 46,000,000 barrels this year, a drop of 84,000,000 barrels. Apparently the reduction in foreign markets is about ended now.

"In 1941, imports may rise from 82,000,000 to 95,000,000 barrels, and exports drop from 128,000,000 to 114,000,000 barrels. This would leave us with net exports of some 20,000,000 barrels. About 150,000,000 barrels of Caribbean oils went to Europe last year, principally to Britain. Part of the outlet for these oils is in the United States, and pressure will be exerted to have them increased. It may be a part of our foreign policy to let in more of this oil, but if not, we may lose part of the export market to them.

"It will be necessary for us to import some of this oil to supply the residual demand, or else increase runs to stills here. The latter would tend to disrupt the domestic situation further by adding to gasoline stocks.

"Stocks of residual oils are up only 2,000,000 or 3,000,000 barrels east of California; the total is only 28,000,000 barrels. The demand is much higher because it fluctuates with industrial developments, and this is our principal problem for the next six months.

"To supply the increase in demand expected during the first quarter, it may be necessary to run 3,700,000 barrels daily to stills, and to increase this to 3,800,000 barrels daily during the last three quarters of the year. To get in balance, however, we will need to liquidate some 2,000,000 barrels of gasoline monthly during the first two months.

"The winter demand for distillate is just beginning. The demand for all fuels will be up 10 percent in 1941. However, it will increase only about 5 percent during the first quarter. Runs for the first quarter, therefore, should not be less than 3,500,000 barrels daily for January, 3,550,000 barrels for February, and 3,600,000 barrels for March. As demand materializes, runs to stills can be stepped up proportionately. I estimate that total gasoline stocks on March 31 will be 83,000,000 barrels. This includes 5,000,000 barrels of aviation gasoline on hand now, plus 3,000,000 barrels more to be produced. The demand will appear for this gasoline, although the orders have not yet come in. This may bring stocks up to 97,000,000 barrels by the end of the first quarter.

"A sharp increase in demand during the second quarter may be anticipated," White said. "The more refiners reduce runs to stills, the greater will have to be the imports to supply fuel oils.

"However, during the year we may have to increase production only 1 percent, although the domestic demand for all oils will be up 6 or 7 percent. Exports will drop about 1 percent; im-

ports will increase about 1 percent; there should be a reduction of 1 percent in runs to stills. This takes out 3 percent of the increase anticipated.

"Any further increases above 6 or 7 percent, however, must be supplied from increased production. Meanwhile, the crude production should not exceed the levels of this year."

White said he thought that fuel demands would be up as much as 10 percent during the last quarter. This will allow time for industry to begin operations on the defense program, which will pyramid the demand for oils of this type, rather than increase the demand for gasoline.

Allowables

Call Special Texas Hearing To Examine Nominations

The Texas Railroad Commission announced an emergency state-wide hearing for December 11 at Austin to "re-examine" December and January nominations.

Commissioner Ernest O. Thompson announced that each purchasing company will be expected to have a representative attend and testify under oath as to whether or not the nominations filed by the company are firm for 60 days.

Commission Chairman Lon A. Smith told correspondents of a price cut reportedly made by Republic Oil Refining Company, but Thompson and Commissioner Jerry Sadler indicated they knew nothing of it.

The commissioners declined to commit themselves further, and when pressed for further comment, merely said that the emergency action had been taken on their own motion.

"We want to see if the nominations are correct," declared Sadler.

Call Arkansas Hearing on Waste for December 16

The Arkansas Oil & Gas Commission has called a hearing for 10 a.m. December 16 at El Dorado "to determine whether or not waste of oil or gas is taking place or is reasonably imminent in the state of Arkansas, and also in any or all of the common sources of supply of crude oil and natural gas discovered in said state after January 1, 1937." Allowables for January also will be determined, Commission Chairman C. O. Bailey announced.

Associations

Selection of Separate Oil Body Concerns Association

Having taken the initiative in sponsoring legislation for creation of a separate commission to regulate oil and gas production in Texas, the West Central Texas Oil & Gas Association's membership failed to agree as to whether the enforcement body should be appointed by the governor or elected. The matter became an issue at the ninth annual meeting at Abilene December 2. Discussion revealed that the campaign for an exclusive conservation bureau may be hindered by factions holding out for an elective or appointive personnel.

D. H. Bolin, Wichita Falls, president of the North Texas Oil & Gas Association, advocated creation of an oil and gas commission on an appointive basis. "We need a commission that is qualified to act on petroleum matters, and to give its full time to conservation matters without being involved in political campaigns every two years," Bolin stated. He held that an appointive bureau would curtail special privileges and eliminate practices which may eventually lead to federal control.

Spokesman for the group favoring an elective commission, Mark McGee, Fort Worth attorney, voiced opposition against placing the appointive power in the hands of the governor. He charged that it amounts to a deep-seated fight to take control of an important state function from the people. McGee added that he was not defending the present commission.

Citing the Texas Highway Commission as an efficient departmental group although filled by appointments, Senator Clint W. Small, Amarillo, chief counsel for the Independent Oil Producers Equity Association, contended that the oil industry would also be free from politics if the governor, subject to legislative approval, is given the power to appoint a full-time oil and gas commission.

Clarel B. Mapes, general secretary of the Mid-Continent Oil & Gas Association, discussed the effect of the wage and hour law as applied to the petroleum industry the past two years.

W. J. Rhodes, Breckenridge, veteran operator in the district, was elevated from first vice president to president of the organization. He succeeds Joe A. Clarke, Albany, who was elected a vice president along with C. W. Hoffman, Eastland; J. E. Whiteside, Brownwood, and F. A. Dunigan, Breckenridge. Malcolm M. Meek, Abilene, was chosen secretary-treasurer, and J. C. Watson was retained as executive treasurer.

Gulf Coast Refiners Protest Tanker Rates

The Gulf Coast Refiners Association, meeting in Houston last week, instructed its officers to protest to the attorney general and government agencies regulating shipping concerning tanker rates "and other factors which apparently constitute restraints upon trade."

The action came following discussion of coastwise tanker rates which were described as "excessively high."

The organization also instructed officers to continue to "lay before appropriate government agencies views of the association that specifications should be given careful study in order that existing plant facilities be used, if possible, to produce defense materials."

Houston A.P.I. Will Meet on December 9

The Houston chapter of the American Petroleum Institute will hold its annual golf tournament and banquet at Brae Burn Country Club, December 9. New officers are to be elected at this meeting, and several entertainment features are to be presented.

Dinner tickets are obtainable from Paul L. Guarin, Shell Oil Company, Houston, at $1 each.

World-Wide Developments

Exploratory Work Scheduled For British Guiana Shortly

British Guiana is due to see some exploratory work shortly. Trinidad Leaseholds should start drilling within a short time on properties on which they have been doing geophysical work.

Geophysical crews of both Shell Oil Company and Standard Oil Company of New Jersey have been carrying on work in British Guiana for more than a year.

Await Union Reaction to Mexican Labor Board Order

Students of the oil industry in Mexico are watching with interest for reaction of the Petroleum Workers Union to the order of the Federal Labor Board last week which authorized the government oil administration to discharge all employes engaged since foreign-controlled oil properties were expropriated by Ex-President Cardenas.

The order, issued because of the unbalanced financial condition of the industry, will put about 4000 of the industry's 18,000 employes out of work.

In addition to the reduction in personnel, the order authorized salary cuts ranging up to 10 percent for all making more than 700 pesos monthly. The saving thus effected will be relatively small.

The Petroleum Workers Union consistently has fought both personnel and wage reductions since it became evident that economies had to be brought about to save the industry from bankruptcy. Blame for the poor state of affairs was laid by the union at the door of the administration.

Venezuelan Future Awaits Additional Shipping Facilities

What Venezuela can do to feed the world's ever increasing oil demand will depend mainly, not on the development of oil wells themselves, but on shipping facilities, Dr. Pedro I. Aguerrevere, of the Venezuelan Geological Survey, said recently.

Transportation of oil across the Lake Maracaibo bar is limited to about 500,000 barrels daily at high tide, and Dr. Aguerrevere said there is no use to drill other wells until transportation facilities for getting the oil out of the country are available.

Production west of Lake Maracaibo, he said, lacks sufficient pipe-line outlet to deep water terminals.

Rumanian Pipe Lines Taken Over by Government

December 4 Rumania took over all pipe lines and oil transportation facilities by government decree. Companies owning pipe line facilities will be reimbursed for same through issuance of 3 percent 25-year bonds, it was announced.

Gasoline Situation Aided By Moderate Operations

Both production and processing of crude oil were within moderate proportions in the week ended November 30, latest statistics of the industry revealed, and inventories reacted favorably.

Gasoline production increased somewhat, but despite the larger output, there was only a small addition to storage.

Seasonally large consumption of heating oil proceeded, and stocks of that product were drawn upon to the extent of more than 1,000,000 barrels. But at the end of the week, the inventory was about 8,500,000 barrels larger than at the corresponding time last year.

Stocks of heavy fuel oil also were somewhat further reduced, in reflection of the nation's brisk industrial activity.

As Texas fields were shut down 3 instead of the normal 2 days a week, United States crude oil production dropped sharply to 3,335,050 barrels daily in the week ended November 30, from 3,765,900 barrels the week before, according to the American Petroleum Institute. That was 235,000 barrels a day less than market demand, as estimated by the United States Bureau of Mines. It was, however, 1.4 percent more than the exceptionally moderate production of 3,289,200 barrels daily reported in the corresponding week last year.

Crude runs to stills were maintained unchanged at 3,510,000 barrels daily in the week of November 30, a fairly satisfactory level, although economists have advised average daily runs 100,000 barrels lower than that for the fall and winter period as a whole. In November of last year, runs to stills averaged 3,497,000 barrels daily.

Gasoline production rose to 11,503,000 barrels in the week ended November 30 from 11,315,000 barrels in the preceding 7 days.

Stocks of finished and unfinished gasoline in the United States rose only from 80,100,000 to 80,284,000 barrels during the week, and thus showed an increase of less than 500,000 barrels for the three weeks since dipping to the year's low of 79,847,000 barrels on November 9. The inventory now is within about 3,400,000 barrels of the curve for a year ago, after having stood far above it in the past.

Gas oil and distillate fuel stocks were reduced from 47,511,000 to 46,212,000 barrels in the November 30 week, as market demand proved brisk. A year previously the inventory totaled 37,888,000 barrels.

Residual fuel oils also came out of storage, as the stocks diminished from 106,871,000 to 106,618,000 barrels. The latter figure was 3.4 percent under that of 110,360,000 barrels a year ago.

Crude oil stocks increased slightly, from 261,619,000 to 261,723,000 barrels in the week ended November 23, the bureau reported.

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1938:						
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[5]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[1]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,373,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[1]48,893,000	108,475,000
November 2	3,479,950	3,535,000	263,820,000	80,774,000	48,615,000	108,199,000
November 9	3,584,200	3,510,000	261,631,000	79,847,000	48,408,000	107,687,000
November 16	3,576,550	3,540,000	261,619,000	80,063,000	48,108,000	107,151,000
November 23	3,765,900	3,510,000	261,723,000	80,100,000	47,511,000	106,871,000
November 30, 1940	3,335,050	3,510,000	.....	80,284,000	46,212,000	106,618,000
November 30, 1939	3,289,200	[8]3,497,000	[4]231,811,000	76,790,000	37,888,000	110,360,000
Change in past year.	+1.4%	+0.3%	+12.9%	+4.6%	+21.9%	—3.4%

[1] All-time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, November 25, 1939.
[5] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] November, 1939, daily average.

Markets Disturbed as Coastal Crudes Are Cut

Seriously disturbed conditions prevail in the industry's markets, with crude prices in the Mid-Continent in danger of a general break following initiation of lower postings on the lower Texas Gulf Coast December 5 by an independent company that buys about 28,000 barrels daily.

A price revision, initiated by Republic Oil Refining Company, a refining unit of the Benedum-Trees interests, left 20-20.9-gravity crudes unchanged in price, but substitued a 1-cent instead of a 2-cent differential for each degree of gravity on the lighter oils. That change involved reductions ranging from 1 cent on 21-gravity crude to 20 cents on 40-gravity and above, with much of the oil involved testing close to 40-gravity.

The reduction was not altogether unexpected, as it represented an extension to the Texas Gulf Coast of downward revisions made several weeks ago on high-gravity crudes of the Louisiana Gulf Coast, North Louisiana and Arkansas.

The cut emphasized again the depressing effect that the weak gasoline market throughout the country is having on the markets for crude oils with high gasoline content.

Gasoline Postings Up

Earlier in the week, attention had been directed to the gasoline situation by a general advance of gasoline tank wagon prices in Texas by most leading marketers. The head of one of the large companies explained that better gasoline prices were necessary to re-establish a sound ratio to prevailing crude prices. He added that the advances did not bring gasoline prices up high enough to support crude postings, but that necessary further increases might be possible if gasoline stocks could be maintained close to current levels during the winter.

The gasoline price advance had appeared favorably significant, as it was instituted only after there was some basis for hope that the betetr prices might be maintained, with the support of a somewhat improved gasoline inventory position. In the past several weeks there has been only a very small backing up of gasoline in storage, with refinery runs held down to moderate proportions, whereas substantial weekly accumulations are normal for this time of the year.

Following the crude price cut, opinion was divided as to the probability that other purchasers would follow suit. Inasmuch as Republic Oil Refining Company buys a large amount of crude, a spreading of the reductions appeared quite likely. But it was pointed out that the cut might not be as significant as the amount of the purchases indicated, as the company purchases principally from affiliated concerns.

Special Hearing Called

Late in the week, it was indicated, moreover, that decisions by other purchasers might be postponed at least until after the emergency hearing of the Texas Railroad Commission at Austin

Wednesday, December 11. The commission called the meeting following the crude cut and explained that in order to consider the possibility of existing physical waste, it would resurvey the markets for Texas crude by considering nominations for purchases given under oath.

The commission could order immediate reduction of prevailing allowables, if conditions seemed to demand such action, and the calling of the hearing consequently appeared likely to delay at least temporarily any general revision of crude prices.

Conditions in the refined oil markets, furthermore, were somewhat indicative of at least a temporary maintenance of crude postings. Fuel oils of all grades continued in brisk demand, and quotations on heating oils, range oil, and kerosene were advanced by some refiners and resellers.

Gasoline Price Advances

In several sections of the country, tank-car, tank-wagon and service-station prices of gasoline also showed improvement, in response to the betterment of the gasoline inventory situation in recent weeks.

A factor in the various prices increases, however, was the continued advance of tanker rates, which finally have climbed to all-time highs.

The advance of tank-wagon prices of gasoline in Texas averaged about 1 cent a gallon and applied at points where prices were subnormal.

In Oklahoma, too, some of the major companies late last week increased their tank-wagon prices of gasoline 1 cent a gallon.

Effective December 3, Socony-Vacuum Oil Company advanced its tank-car and tank-wagon prices of regular gasoline throughout New York state and New England except western New York state and areas where prices were unsettled.

At New York harbor, about the same time, some suppliers advanced tank-car and barge prices of some grades of gasoline, particularly the higher-octane

Wholesale Prices of Refined Products

REFINED GASOLINE	Range late Last week (Cents a gal.)		Changes from week Before	
Oklahoma Refineries:				
60 Octane and under	3¾	4¼	...	...
63-66 Octane	4⅛	4½	...	...
72-74 Octane	4½	5	...	...
Mid-Western Tank Car:				
60 Octane and under	3¾	4¼	...	...
63-66 Octane	4⅛	4½	...	...
72-74 Octane	4½	5	...	...
New York Harbor:				
68-70 Octane	5¼	5½	+¼	...
72-74 Octane	5¼	6½	+¼	...
Gulf Coast:				
60 Octane unleaded	3¼	4½	—¾	...
65 Octane unleaded	3½	4⅝	—⅛	...
72-74 Octane leaded	3½	4⅝	—¼	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	2¼	2¼	...	...
F.O.B. Breckenridge, Tex. 2		2	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	3⅞	4	...	...
42-44 water white	4	4⅛	...	...
Mid-Western Tank Car:				
41-43 water white	3⅞	4	...	...
42-44 water white	4	4⅛	...	...
New York Harbor	5⅜	5½	+¼	...
RANGE OIL				
At Oklahoma Refineries	3¾	3¾	...	...
In Mid-Western Market, Group 3, basis	3¾	3¾	+⅛	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3½	3⅝	...	...
No. 3	3⅜	3½	...	+⅛
Mid-Western Tank Car:				
No. 1 white	3½	3¾	...	...
No. 3	3¼	3½	+⅛	...
New York Harbor:				
No. 1	5⅜	5½	+¼	...
No. 3	4¾	4¾	+¼	+¼

HEAVY FUEL OILS	Range late Last week (Per Bbl.)		Changes from week Before	
Oklahoma Refineries:				
No. 6	$0.55	$0.60	—.05	...
Mid-Western Tank Car:				
No. 5	.75	.75	...	...
No. 6	.50	.60	...	...
New York Harbor:				
No. 5	1.45	1.55	...	...
No. 6	1.15	1.25	...	...
BUNKER C FUEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$ .80	$ .90	...	...
New York Harbor	1.15	1.25	...	...
DIESEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$1.50	$1.70	...	...
New York Harbor	1.95	1.95	+.10	+.10
Los Angeles Basin, 27 gravity	1.15	1.35	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	13	15½	...	...
Neutral oil, pale No. 3 color, 150 viscosity at 100°, 0-10 pour test	8	10¼	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	12	14	...	...
Neutral Oil No. 3 color, 150 viscosity at 70°, 25 pour test	19	19	...	...

United States Crude Oil Production Up Sharply

Estimates Compiled by The OIL WEEKLY

DISTRICT OF STATE	Bureau of Mines Estimate of Daily Demand (Dec.)	State Allowable (Barrels Daily in Dec.)	BARRELS DAILY FOR WEEK ENDED Nov. 30	Dec. 7
TEXAS—				
Texas Panhandle	.....	.....	50,800	81,300
North Texas	.....	.....	105,900	113,800
West Central Texas	.....	.....	27,800	31,200
West Texas	.....	.....	179,500	217,300
East Central Texas	.....	.....	73,300	80,900
East Texas Field	.....	.....	299,400	375,400
South Texas	.....	.....	160,600	202,600
Texas Gulf Coast	.....	.....	193,800	243,700
Total Texas	1,277,000	[1]1,316,657	1,091,100	1,346,200
CALIFORNIA—				
Long Beach	.....	.....	41,950	41,500
Midway-Sunset	.....	.....	39,200	43,500
Kettleman Hills	.....	.....	38,200	39,100
Wilmington	.....	.....	81,500	82,000
Others	.....	.....	398,500	394,000
Total California	593,900	[2]571,000	592,200	600,400
OKLAHOMA—				
Oklahoma City	.....	.....	95,250	108,100
Seminole Area	.....	.....	101,325	101,950
Others	.....	.....	206,925	209,675
Total Oklahoma	422,600	390,000	403,500	419,725
ILLINOIS—				
Salem	.....	.....	112,200	117,800
Louden	.....	.....	71,300	69,000
Centralia	.....	.....	15,500	16,300
Other New Pools	.....	.....	112,300	109,800
Old Pools	.....	.....	10,400	10,600
Total Illinois	363,600	341,150	331,700	323,500

DISTRICT OF STATE	Bureau of Mines Estimate of Daily Demand (Dec.)	State Allowable (Barrels Daily in Dec.)	BARRELS DAILY FOR WEEK ENDED Nov. 30	Dec. 7
LOUISIANA—				
North Louisiana	.....	.....	66,700	66,600
South Louisiana	.....	.....	220,200	220,200
Total Louisiana	280,300	287,246	286,900	286,800
KANSAS	188,400	192,400	196,650	183,100
NEW MEXICO	100,600	104,000	101,100	101,300
EASTERN STATES—				
Pennsylvania Grade	47,900	.....	67,800	69,100
Others, Eastern	43,000	.....	20,400	20,500
Total Eastern States	90,900	.....	88,200	89,600
MOUNTAIN STATES—				
Wyoming	74,500	.....	73,500	73,100
Montana	19,700	.....	18,000	17,800
Colorado	3,900	.....	3,400	3,400
Total Mountain States	98,100	.....	94,900	94,300
MICHIGAN	47,100	[3]44,000	47,200	46,500
ARKANSAS	66,100	70,176	69,600	69,500
INDIANA	15,500	.....	21,100	20,600
MISSISSIPPI	13,900	.....	15,500	17,000
NEBRASKA	2,000	.....	2,500	2,650
[4]Total 8 Prorated States	2,976,000	2,972,679	2,788,250	3,053,525
Total United States	3,560,000	.....	3,342,150	3,601,175

[1] Estimated net basic daily allowables as of December 1. Railroad Commission estimates that actual production normally is about 3 percent under the net allowable. But allowable normally increases as new wells are completed. Under December order, most Texas fields were ordered shut down December 1, 7, 8, 14, 15, 22, 25 and 31.
[2] Recommendation of Conservation Committee of California Oil Producers.
[3] Estimate of actual production under prescribed regulations, which do not fix a definite state total allowable.
[4] Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.

classifications. Similar increases were made also at Philadelphia and at other Atlantic Coast points.

Republic Statement

Along with its new crude-price schedules, Republic Oil Refining Company offered explanation that the reductions involved were necessary to bring the costs of the refiner's raw material down more in line with the market value of derivatives.

"The posted field prices of Gulf Coast crudes, as you are aware, have been fairly constant for a long period of time," read the company's statement. "However, the Gulf Coast prices for refined products have been below normal and much less than actual cost to the Gulf Coast refiner for a long time."

Products have declined within the past year, according to the statement, as follows:

Products	Date 11-27-39	Date 11-27-40
Gasoline, 72-74 Octane	6.125	3.50
Kerosene	4.50	3.75
Heating Oil, No. 2	4.00	3.25
Bunker Fuel Oil	.95	.80

"In the hope that this situation would right itself," the statement continued, "we have continued the policy of paying higher prices for Gulf Coast crudes than could be realized from the products, although this company has been offered Gulf Coast crudes much lower than our posted prices. It is obvious to all that such a policy by a manufacturer cannot be continued indefinitely.

"As you no doubt are aware, East Texas and some West Texas crudes at lower costs are refined on the Gulf Coast in competition with Gulf Coast crudes. Crude oil in the form of recycling plant distillate is being sold f.o.b. Gulf Coast at prices under field posted prices of crude oils (subject to proration orders), plus transportation of such crude, according to what we consider reliable information. East Texas and West Texas crudes are being sold on the Gulf Coast in competition with the higher priced Gulf Coast crude, and East Texas crude in particular has been available at the Gulf Coast at prices considerably under field posted prices, plus published transportation tariffs, which situation also applies to a very few Gulf Coast crudes.

"We regret very much the necessity of reducing our posted field price for Gulf Coast crudes," concluded the statement, "and it is our hope and belief through the attention, consideration and cooperation of all interested parties, that the prevailing abnormal conditions will be corrected and that refined products manufactured from Gulf Coast crudes will soon bring prices commensurate with their true value, thus making it possible for this company to increase its posted field price for crude."

A letter sent out several weeks ago to producers and royalty owners by Humble Oil & Refining Company, largest purchaser in Texas, similarly had called attention to the disparity between crude prices and depressed product prices, and that company had pointed out that the situation place the established crude postings in serious jeopardy. That company had gone farther into the matter with a comprehensive economic discussion, in which it asserted that much of the trouble was due to irregularities and inequalities in the fixing of allowables in Texas fields.

Republic Oil Refining Company's new schedule for the Benavides, Longhorn, Southland, and Sweden fields, Duval County, and the Heyser field, Calhoun-Victoria counties, ranges from 88 cents for 20-20.9-gravity by 1-cent differential to $1.08 for 40-gravity and above. The postings of other purchasers range from 88 cents to $1.28, by 2-cent differential.

Republic's new schedule for the Saxet and Minnie Bock fields of Nueces County, and the Plymouth, Midway and East White Point fields of San Patricio County, range from 93 cents for 20-20.9 gravity, by 1-cent differential, to $1.13 for 40-gravity and above. Other purchasers continued to pay prices ranging similarly, by 2-cent differential, from 93 cents to $1.33.

Domestic tanker chartering rates last week had reached new all-time high levels. Last paid rates for clean boats were 65 cents a barrel for moving gasoline from the Gulf Coast to North Atlantic points, and 75 cents for No. 2 fuel oil. Dirty boats were last chartered at 42 cents for 30-gravity or lighter crude oil, and 48 cents for heavy crude and fuel oil.

Production Up Sharply As Texas Shows Gain

Largely in reflection of another wide fluctuation of output in Texas, United States crude oil production increased sharply in the week ended December 7, having averaged 3,601,175 barrels daily.

That was 259,025 barrels more than daily average production in the previous week, although only 41,175 barrels more than market demand, as estimated for December by the Bureau of Mines.

Texas fields were shut down only 2 days, as compared with 3 days the previous week; and the state's daily output consequently jumped 255,100 barrels, to 1,346,200 daily. The new rate was, however, only 69,200 barrels more than the estimated daily average market demand for Texas crude. And the excess is due to be compensated later in the month through an extra shutdown in one week.

California production last week was up 8200 barrels in averaging 600,400 barrels daily, and exceeded market demand 6500 barrels.

Oklahoma averaged 419,725 barrels daily, which was 16,225 more than in the previous week but 2875 less than indicated demand.

Other leading producing states showed decreases. Illinois was down 8200 barrels to 323,500 daily and underproduced demand approximately 40,000 barrels. Louisiana decreased only 100 barrels to 286,800 daily and exceeded demand 6500 barrels. Kansas declined 13,550 barrels to 183,100 daily and fell 5300 barrels under the forecast of daily average market demand for the state's crude in December.

Mississippi Meet on Oil Legal Problems Scheduled

An oil and gas institute to acquaint Mississippi attorneys with some of the legal problems that may arise in the state's oil development will be held January 10 at University of Mississippi, Oxford, Dean T. C. Kimbrough, of the law school faculty, announced last week. Dr. W. L. Summers, of the University of Illinois law school, and A. W. Walker, Jr., of the University of Texas law school, will speak on the one-day program.

Act to Remove Costa Rican Monopoly on Gasoline Sales

After ten years of unsuccessful operation, the government of Costa Rica has requested the congress to revoke its monopoly on importation and sale of gasoline, and to return that business to private interests. The government monopoly in Costa Rica failed to raise enough revenue for scheduled road building, and it was found out that available road funds will be greater if obtained from tax on private enterprise.

American companies, instead of the Costa Rican government, now will furnish the money necessary for erection of storage plants and tanks at Puntarenas, port on the Pacific Ocean.

Gasoline and importation taxes to be obtained from private enterprise will be used to amortize a loan of $4,600,000 granted Costa Rica by the Export-Import Bank of the United States for the purpose of building the former country's section of the Pan American highway.

It is possible, in the light of Costa Rica's experience, that other Ibero-American countries may follow suit, for some of them are finding the government monopolies on various phases of the oil industry are not paying off according to promises of those sponsoring inauguration of the monopolies.

Pipe Lines

Plan Short Oil Line to Serve Oklahoma's Bemis Pool

Kaw Pipe Line Company has announced preliminary plans for a 23-mile extension of its main 8-inch crude line from the Gorham pool, Russell County, to the Sullivan Station in Section 14-14-15w. The extension would begin at the station and run northwest to the Bemis pool, Ellis County, to terminate in Section 11-11-17w.

Capacity of the present system would be increased 12,000 barrels daily, although it is expected to run only 4000 to 5000 barrels per day. The company is owned by The Texas Company, Cities Service Oil Company and Phillips Petroleum Company.

Stanolind to Connect With Griffin Field

Stanolind Pipe Line Company was moving in materials late last week for construction of a 5½-mile 6-inch gravity crude line from the Griffin pool, northwestern Archer County, Texas, to its K-M-A field system. The company agreed to enter the pool, which has heretofore relied upon tank truck crude shipments for an outlet, after Jack Kadane et al scored a big well about 4000 feet east of production.

Short Gas Line

Fourteen miles of 4-inch welded natural gas line has been authorized by Kittery Oil Company for marketing of gas from its recent shallow gas discovery in northwest Shackelford County, Texas, to the Bluff Creek and other pools near the Shackelford-Jones County border. The gas will be utilized for repressuring shallow oil areas.

U. S. FIELD OPERATIONS

Illinois

Discoveries Finaled in Jefferson and Gallatin

A Jefferson County pool opener, Obering & Phillips' Howe 1, SW 25-2s-1e, pumped 70 barrels in 24 hours during its initial test of Benoist sand at 1981-88 feet following a 4-quart nitro shot. The test was made with a spudding machine, and a pump jack was being installed. The test, 2½ miles from the Roaches field, and a mile from the village of Woodlawn, is the first of the year in Jefferson County.

The Carter Oil Company finally completed its Gallatin County pool opener, R. M. York 1, after weeks of testing, with an initial production of 526 barrels in 24 hours from the Palestine sand at 1704-11, with 0.2 water. The well, in the SE SE SW 33-7s-9e, near Omaha, has been shot. George and Arthur Cameron have a derrick up for S. Rister 1, NE NE NW 4-8s-8e, a Carter Oil Company farmout and a south offset to the discovery. The same operator's Robinson 1, SE NW 4-8s-8e, southeast of Rister 1, was drilling below 300 feet. Operators originally had intended to rework a Kingwood Oil Company abandonment on the Robinson lease, but it was decided some of the shallower formations might have been mudded off and a new test was started.

The Carter Oil Company has started a long-awaited stratigraphic test in the SW SE 21-8n-3e, Loudon pool, Fayette County, on the Hogan Heirs lease. It was reported the company would explore at least to the Devonian lime. At present, the field is productive in three formations, the deepest of which is Benoist sand. The discovery well at Loudon, the company's Mary Miller 1, was drilled to the Devonian and found some oil in the formation, but was plugged back and completed in the Benoist. Later development of the field indicated Miller 1 was not well located on the structure, which led many operators to believe the Devonian will pay off in other areas. The company already has reached a 20-acre spacing agreement with independents at Loudon, in event the Devonian horizon is developed.

In southern Fayette County, Kingwood Oil Company's Aukamp 1, C SW SE 30-5n-3e, was abandoned in Devonian lime at 3575 feet. A show of oil was found in Benoist sand at 1900-14 feet. The company has begun a new Fayette wildcat, Dayton 1, E½ NW SE 14-6n-1w, where derrick has been erected.

The old Allendale field of Wabash County, scene of a boom a quarter of a century ago, has prospects of deeper development. Young et al's S. J. Stillwell 6, SE 1-1n-12w, began flowing Thursday from Benoist sand which previously had not been productive. All production has been from the shallow Biehl sand. Operators found the Cypress dry and had drilled to 2011 feet when the well began flowing. However, the test is not yet a completion.

Casing was perforated opposite a Benoist-sand showing at a Washington County wildcat, Harry Hubbard's Hunleth 3, SW NE NW 29-3s-4w, and operators were swabbing and cleaning the hole. Total depth is 1185 feet. Hunleth 3 is the third well on the same tract drilled recently by Hubbard, all of which found Benoist shows. However, the first two tests were abandoned without setting casing.

A new Perry County wildcat, ½ mile southwest of recently abandoned Malinsky 1, G. H. Blankenship's Anton Bednarkewicz 1, SW SW NW 24-4s-2w, was drilling below 1200 feet with the Benoist sand expected within 100 feet. A show of Cypress oil was tested at Malinsky 1, also drilled by Blankenship.

A Jackson County wildcat, near Murphysboro, W. R. White et al's Ralph Dean 1, NE NW NW 18-9s-3w, has recovered a small amount of oil from the McClosky following an acid treatment, and was being tested. Total depth is 1218 feet.

A proposed St. Peter (Wilcox) test in the old Sandoval field, Marion County, B. E. Martin's Robinson 1, SE SW 4-2n-1e, was drilling at 4725 feet, from 500 to 600 feet from the anticipated depth of the formation, which never has been explored in the area. First Trenton test in the Lake Centralia-Salem field, Marion County, Paul Rossi's Brooks 8, SW NE SW 29-2n-2e, was drilling at 3930 feet, having made 500 feet of hole since deepening from the Devonian began. Contract depth is 4600 feet.

A White County wildcat, northwest of the New Harmony pool, O. O. Borden's McCallister 1, NE SE NE 7-5s-14w, was producing between 15 and 20 barrels an hour from the Aux Vases. It flowed natural for a short time after plug was drilled. Some operators regard the well as an extension of the New Harmony field, while others list it as a pool opener. A west outpost to the Mill Shoals field, also in White County, Ben Nation's Rose Dunn 4, NE NW NW 6-4s-8e, was drilling below 3200 feet. On the south side of the Calvin field, eastern White County, Tipton's Boultinghouse 5, NE SE NE 17-4s-14w, appears to be one of the field's largest producers, starting at 200 barrels in its first 50 minutes, and then settling to 50 barrels an hour from the Aux Vases.

A Hamilton County wildcat, Kingwood Oil Company's McGuire 1, CW½ SW NW 11-5s-7e, has been abandoned in McClosky lime at 3583 feet.

In Wayne County, S. & G. Oil Company's C. C. Shreves 1, CE½ SE NE 4-3s-8e, ¾ mile north of M. I. O. U.'s discovery, has been abandoned at 3563 feet through the top of the St. Louis lime. It was reported the abandoned test ran six feet higher structurally than did the discovery.

A Bond County wildcat, Joe Harding's Gottfried 1, NE NE NW 28-5n-4w, was testing a show of oil in the shallow Pottsville sand at 595-630 feet. The test was plugged back from Benoist sand at 931 feet, and is expected to make between a 10- and 20-barrel well after a shot. Gottfried 1 is in Old Ripley township where the first oil show in Bond County was found 27 years ago.

Indiana

Posey Wildcat Cores Oil Sand in Pennsylvanian

Illinois Production Corporation's John Larkin 1, NE NE SW 17-6s-14w, Posey County wildcat near Welborn, six miles south of Ribeyre Island production, cored saturation in a Pennsylvanian-age sand at 417-30 feet, and was deepening. Whisenant & Trenchard, Evansville, are contractors.

About two miles northeast of Stewartsville, Robb Township, Posey County, Harris & Meyers located Ballard Daugherty 1, NW NW 1-4s-14w, Superior Oil Company farmout to Joe Engberg.

In the McClosky pool south of Vincennes, labeled the St. Thomas pool of Knox County, W. C. McBride, Inc., abandoned Metropolitan Life Insurance Company 2, SW SW NE 24-2n-11w, after testing water in two breaks in the St. Genevieve, plugging back shooting into water in the Benoist at about 1742-62 feet.

Meanwhile, McBride was moving in cable tools to drill plug in John M. Brevort 1, four miles north of St. Thomas pool production, which set casing at 1878 feet, with McClosky at 1864-1891 feet. Hole was bottomed at 1972 feet.

South of this test and north of McBride's Metropolitan 2, Midwest Development Company was drilling at 1600 feet in Sheldon Montgomery 1, SW SW SW 12-2n-11w.

In the Ohio River, just upstream from Mt. Vernon, L. F. Boone's Sand Island 1 was drilling at 2570 feet, after coring about 10 feet of fair Tar Springs saturation. Cypress, at 2334-74 feet, was dry. Roger Bauman, Evansville, is contractor.

Spudding with cable tools was a Sullivan County wildcat, about 12 miles north and east of Sullivan and 10 miles east of the old Siosi field, T. H. Drake's Mary Curry 1, C NE NW 11-9n-8w.

In the old East Francisco field of east Gibson County, A. A. Bareuther's Hollingsworth 9, N½ SW SE 13-2s-10w, was being completed in the Cypress sand at 1411-20 feet for an estimated 10-barrel well. Hole filled to 130 feet with oil overnight.

In the South Griffin field of western Posey County, just across the Wabash River east from the new Calvin field production, Tide Water Associated Oil Company was drilling plug for Blanche Doll 3, SW SE SE 33-3s-14w, to test Aux Vases at 2800-14 feet. Hole was bottomed at 2818 feet.

Oklahoma

Large Gasser Finaled at Chickasha, Grady County

Oklahoma Natural Gas Company and Texsun Drilling Company completed the largest gas well in the Chickasha gas pool, Grady County, at Sandford B-1, C W½ NW SW 23-5n-8w, north end of the area. Deese sand of Pennsylvanian age was logged at 4115-4291 feet, and pipe was perforated at 4106-4290 feet. Flow gauged 198,000,000 feet per day with shut-in pressure of 1865 pounds. Sinclair Prairie Oil Company's Pooler B-2, C E½ NE NE 22-5n-8w, cemented pipe at 4225 feet and drilled pay to 4262 feet. On spring gauge, it showed 38,500,000 feet daily with 1800 pounds shut-in pressure, and became the fifth deep sand producer for the field. Skelly Oil Company staked location for Edmundson 1, C W½ NW NW 23-5n-8w.

Structurally, this area consists of steeply dipping formations with shallow sand production confined to north and south elongated domes which are superimposed upon a larger feature. This deep sand development indicates sufficient spark to revive this area and maintain a large reserve status. Principal carriers in the pool are Oklahoma Natural Gas Company and Lone Star Gas Company.

Chickasha was discovered in 1914 with development of Nicholas sand. The Carter Oil Company struck deep-sand pay in 1939 at Smith 1, C SE SW 26-5n-8w, around the 5200-foot level for a 13,200,000-foot gasser. Later, Sinclair Prairie Oil Company completed Charleston 4, C E½ NE SE 22-5n-8w, for a 72,000,000-foot gasser from sand at 3968 feet. Numerous sand bodies of varying thickness, similar in this respect to nearby Cement pool, offer good possibilities for future production.

Shell Oil Company spudded Davis 1, SWc 18-13n-9e, a wildcat south of Welty, Okfuskee County, and 10 miles north of Dill pool. Location is on a block of 820 acres, prospected by seismograph. South ½ mile of North Cromwell pool, the company staked Brewer 1, SEc SW 1-10n-8e, a semi-wildcat. Completing a thorough seismograph study of Okfuskee County, Shell Oil Company has leased large blocks in the Okemah area and a large-scale wildcatting campaign is forecast for the future.

In north extension play, Dill pool, I. T. I. O. Company drilled in a 1000-barrel Cromwell-sand producer. Miller 2, NWc SW 35-12n-8e, flowed 1001 barrels in 24 hours through 7-inch casing from pay logged at 3540-75 feet. Surface pipe was cemented at Miller 3, NE NW SW 35-12n-8e, an east offset.

Three additional wildcats were seeking Cromwell-sand production: Henry Oil Company's Dudgeon 1, NE SW SE 36-12n-9e, northeast of Dill pool, was below 2500 feet; Keener Oil & Gas Company's McKernan 1-A, NWc NE 26-12n-8e, cemented surface pipe, and Mid-Continent Petroleum Corporation's Stokes 1, SW SE SW 20-13n-8e, spudded in. Burke-Greis Oil Corporation's Rose 1, NWc 10-12n-9e, was below 1000 feet.

Cromwell Area

North and East Cromwell pools, Okfuskee County, may be united. C. W. Titus et al's Berryman 2, SWc 25-11n-8e, northeast diagonal offset to Foundation Oil Company's East Cromwell pool, was coring in Cromwell sand with small shows of oil.

Shell Oil Company has the second producer for West Milfay pool, Creek County, at Jones 1, NW SW NW 32-15n-7e, an east offset to the discovery. After recovering oil load, it swabbed 2 barrels hourly from Wilcox sand, topped at 4088 feet and penetrated 7 feet. Hole may be deepened slightly and pay squibbed prior to completion.

Stanolind Oil & Gas Company extended Wilcox-sand production in North Earlsboro pool, Seminole County, at Davis 1, SWc NE 3-10n-5e. Formerly an old Hunton-lime producer at 4425 feet, operators deepened to Wilcox at 4664-87 feet and swab recovered 275 barrels in 14½ hours, with production increasing to 51 barrels on a 2-hour test.

Helmerich & Payne, Inc., and John Koberg et al's Freeman 1, NWc SW 2-17n-2e, Payne County, 3½ miles north of Perkins pool, topped first Wilcox sand at 4802 feet and second sand at 4909 feet, and after running electric log to 4918 feet, plugging crew was ordered. Log showed Bird Creek at 1420 feet, Deer Creek 1550 feet, Hogshooter 3250 feet, Layton 3265 feet, Checkerboard 3550 feet, Big Lime 3875 feet, Oswego 3940 feet, Prue 4075 feet, Verdigras 4110 feet, Skinner 4205 feet, Inola 4230 feet, Bartlesville 4325-75 feet, Mississippi 4430 feet, and Viola lime 4728 feet.

Stephens County had small sand discovery at George L. Pace et al's Miller 1, NW NE NW 13-3s-5w, between Dixie and Loco pools. In 24 hours, this wildcat pumped 12 barrels of 25-gravity crude from shallow sand at 930-45 feet. Plugs were drilled to 952 feet.

Wildcatters were focusing attention towards a Woods County, Western Oklahoma Basin test, where Gulf Oil Corporation was drilling Hess 1, C NE NW 33-23n-13w, north of Fairview. Crew was fighting a caving hole in Mississippi lime below 7075 feet. Formations are logged for shows as they are drilled. Oread lime was topped at 4860 feet, Big Lime 5890 feet, and Oswego lime at 6210 feet.

Wildcat Activity

Hilton Phillips, Inc., was starting work at Griffenstein 1, NEc NW 22-8n-2e, 7 miles northwest of St. Louis extension area, Pottawatomie County. No production has developed to date in 8n-2e.

Gled Oil Company was lowering 5-inch casing at Howard 1, SWc NE 20-7n-17w, Hobart-pool outpost, to perforate Simpson sand at 2505-2530 feet. Arbuckle lime showed water at 2543-56 feet.

In Jefferson County, F. T. Johnson et al's Bounds 1, SWc 13-6s-6w, north of Shall Spring pool, was moving in materials. Marland Oil Company staked Kreger 1, SEc NE 4-25n-2w, north of Thomas pool, Kay County.

Viersen Oil & Gas Company completed rigging up Milford 1, NEc 34-6n-4e, between Asher and Gray pools, Pottawatomie County. In East Earlsboro area, Rex R. Moore et al's Brock 1, SWc NW 30-9n-6e, had materials in for a Wilcox-sand test.

In Lincoln County, Mid-Continent Petroleum Corporation et al's School Land 1, NW NE NW 36-12n-3e, south of abandoned Meeker pool, was a new wildcat location.

Roy Starr Oil & Gas Company's State 1, C W½ SW SW 16-20n-2e, 6 miles north of West Stillwater pool, Payne County, was rotating below 4500 feet. J. E. Crosbie was drilling Moore 1, NEc NW 29-20n-2e, to the southwest.

South of Maramec district, Pawnee County, Tom Greer et al staked Isaacs 1, NW SW SE 25-20n-6e. In Noble County, Adams et al's Albright 1, SWc SE 31-23n-2w, south outpost to Billings pool, spudded.

Danciger Oil & Refineries' Hefner 1, SEc 3-4s-4w, 3 miles west of Healdton pool, Jefferson County, was drilling below 2000 feet. It is a scheduled 4250-foot test.

Kansas

Russell Wildcat Has Oil; Gorham in Beaver Extended

Magnolia Petroleum Company either opened North Greenvale pool, Russell County, or extended Greenvale pool ¾-mile northwest as Borrell 1, C S½ SE NE 32-14-12w, swabbed 38 barrels of oil in 13½ hours from Lansing-Kansas City lime at 2865-86 feet. Bit rotated to 2889 feet. Hole will be swabbed to bottom, and pay treated with acid before running tubing and completing.

Sharon Drilling Company's Stoskopf 1, NEc NW 21-16-12w, extended Gorham-sand production in Beaver pool, Barton County, ⅝-mile south. When pay encountered at 3363 feet, was drilled 6 feet, the wildcat began heading oil at intervals.

In one hour, swab recovered 13 barrels of crude. Beaver pool produces from Gorham sand, Topeka and Arbuckle limes.

Between Stumps and Bloomer pools, Ellsworth County, Earl Wakefield et al's Janssen 1, C E½ SE NW 29-17-10w, topped Arbuckle lime at 3278 feet, penetrated 2 feet, and swabbing tests averaged 5 barrels hourly. Operators will acidize.

Misener sand was productive in Wellman (Thurber) gas pool, Rice County, as Ingling et al's Small 1, C SW NW 22-21-9w, perforated casing at 3309-10 feet for a 11,750,000-foot gasser. Originally, the test drilled to 3540 feet for water in Arbuckle lime.

Stanolind Oil & Gas Company has proven Arbuckle lime as a new producing zone in Driscoll pool, Russell County, at Driscoll 1, C N½ SW SE 30-15-11w, ½-mile east of the discovery. Topped at 3255 feet, formation was penetrated to 3260 feet for a good show of oil and a small amount of water at the base of the lime section. Tubing was run and pay acidized with 500 gallons. It is swabbing an undetermined amount of crude. This test checked considerably higher than the discovery, and missed the Sooy sand (Basil Pennsylvanian) which produces in the first well.

Pumping equipment was being installed at R. W. Shields et al's Paxson 1, NEc

11-8-24w, Graham County strike, after running 2-inch tubing to within 200 feet from bottom. Hole is standing full of 41.6-gravity oil from perforations in lime at 3750-56 feet. In Thomas County, Western Kansas, Alva Billings et al's Ryan 1-A, C E½ NE SE 27-8-32w, cemented 8-inch pipe at 3620 feet, and was changing to standard tools to drill plugs.

Valley Osage Oil Company extended Burrton pool, Harvey County, northeast at Fitzgerald 1, C N½ NW 17-23-3w, estimated at 400 barrels per day from Mississippi chat at 3342-69 feet. Operators will acidize before taking potential.

Forest City Basin

Richardson County Receives Fourth Producing Area

Fourth producing area for Richardson County, Nebraska, was apparent at H. S. Campbell and Taylor Drilling Company et al's Wamsley 1, C SW NW 8-1n-16e, ¾-mile north of Falls City pool and on a separate structure. Hunton lime was topped structurally higher than producers on the north edge of Falls City, at 2372 feet, and cores to 2376 feet gave full recovery with good saturation. This is a farm-out from The Ohio Oil Company, which holds all surrounding leases and may necessitate offset drilling.

Johnson & Mitchell have taken a farm-out from Black Gold Operating Company and staked Burgner 1, NE SE NE 31-1n-16e, a mile south of Falls City production, on the west line of producers. Jock Garden has drilling contract.

Midland Development Company had rotary rig to drill Fehr 1, C NW SE 31-2n-16e, 2 miles north of Falls City. Robert McIntyre et al's Hough-Hill 1, C SE SW 6-1n-16e, between the above test and production, topped Lansing lime at 919 feet and was fishing for tools at 1850 feet.

Mid-West Petroleum Corporation has location for Becker Estate 1, C NW NW 6-2n-16e, 2 miles southwest of Shubert pool. Eckhart et al's Ast 1, SWc NW 6-1n-14e, 2 miles northwest of Ogle pool, Richardson County, topped Hunton lime at 2301 feet, and was coring.

Frank Engles et al's Wheeler 1, NEc 9-4n-14e, encountered Hunton lime at 2658 feet and was deepening in that horizon below 2675 feet without a show. This wildcat is 3 miles directly south of Auburn. Lansing lime was topped at 1035 feet. Sand at 2130-70 feet showed a hole full of water with a scum of oil. With 8-inch casing cemented at 2340 feet, 2520 feet of 7-inch line was run.

McCain and Sherrod et al's Doan 1, C E½ NW SE 34-12n-22e, wildcat 5 miles south of Linwood gas pool and across the line in Johnson County, Kansas, deepened from 1585 feet in Simpson, topped at 1575 feet. Wilcox sand was logged at 1590-1690 feet, and hole bottomed at 1692 feet. It was shut down for casing with a hole full of water. Four other wildcat failures were recorded.

Texas Hearings

An increase in the allowable for the old West Columbia field, Brazoria County, will be considered at a hearing before the Texas Railroad Commission December 13.

Operating rules for the Joaquin field, Shelby County, had been scheduled for December 9, but the commission has postponed this hearing to December 12.

Establishment of a spacing rule for the North Cedar Creek field, Bastrop County, has been scheduled for December 10. Operators want five-acre spacing.

An increase in the allowable for the South Esperson field will be considered December 10.

Ask Revision of Peyton Feld Rules

Revision of operating rules for the Peyton field, Pecos and Ward counties, was urged at a hearing before the Texas Railroad Commission last week. The change would apply to method of allocation, allowing assignment of 40 acres to one well instead of the maximum of 20 acres now allowed. Operators asked that the new units be so worked out that no part would be more than 1500 feet from the well to which it was assigned.

Under the method of allocation in effect now (50 percent acreage and 50 percent per well), the allowable credit for a 10-acre unit is less than the credit on a per-well basis. Operators propose to revise the rule to make these allowances uniform and prevent drilling on small tracts to get a higher allowable.

LaSalle Parish Outlet

Placid Oil Company, headed by H. L. Hunt, Dallas, has started construction of a short crude line to extend from the Nebo (Jena) pool, LaSalle Parish, Louisiana, to tank car rack at Searcy, where the company also loads Olla pool production. The Nebo pool outlet will consist of 6½ miles of 5½-inch and 1½ miles of 4½-inch pipe.

OIL-and the new Responsibility

WITH the advancement of the National Defense Program the Oil Industry, in common with all industry, faces new and grave responsibilities.

As always, the Republic stands ready to serve the Oil Industry in this important co-operation for the good of our Nation.

You are cordially invited to avail yourself of the complete facilities of this bank.

REPUBLIC NATIONAL BANK

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ONE OF THE NATION'S 100 LARGEST BANKS

West Texas

First Silurian Production Found in Shipley Pool

First production from the Silurian lime in Texas was uncovered by Gulf Oil Corporation's Wristen 5, east corner of W¼ H&TC Section 18, Block 5, Shipley pool, Ward County, from saturation at 7018-7060 feet after plugging back from junk lost while attempting test last August in Ellenburger at 9002-9187 feet. The well produced 1,000,000 feet of gas with spray of high-gravity oil and rotary fluid natural while cleaning itself for several days. The gas volume increased to 1,750,000 feet daily after washing the hole with 1000 gallons of acid, then responded to treatment with 3000 gallons of acid with a flow of 698 barrels of 35.9-gravity oil in 17 hours through open 2-inch tubing, with gas volume rated at 4,500,000 feet daily. Casing pressure remained constant at 1225 pounds. The well was maintaining an average flow of 33 barrels of pipe-line oil hourly December 6.

Top of the Silurian was logged at 6975 feet with an elevation of 2501 feet. This horizon is between the Pennsylvanian and Ordovician beds, and is rarely encountered in the state. The presence of gas in the Silurian was confirmed by Wristen 5 while drilling to its Ordovician objective as the well yielded 3,000,000-foot flow on drill-stem test, and attempted to blowout at 7120 feet when mud thinned. The company made a costly try at drilling by lost drill pipe so as to acidize saturation in the upper section of the Ellenburger, which yielded 350 feet of mud with 2 percent oil when formation tester was used at 8967-9049 feet.

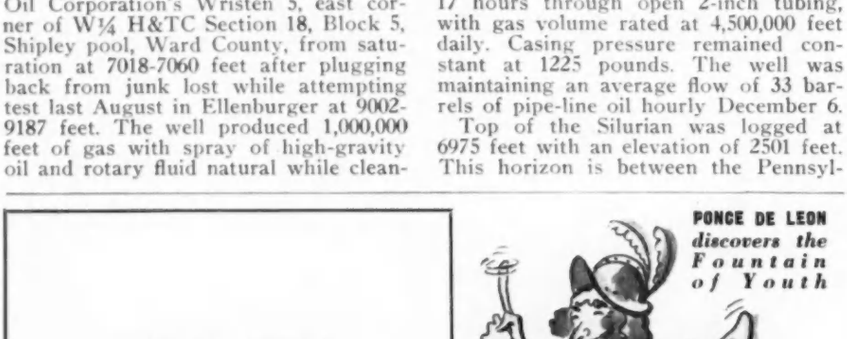
Wristen 5 is the first deep test given Ward County. The company's Wristen lease embraces 6 sections to the north, east and southeast of the well. Deep production was sought in anticipation of early abandonment of its two small pumpers in the Shipley pool 2600-foot pay. Information is also intended to serve as a basis for future deep explorations on the company's Estes 2520 acres, Hutchings 30,450 acres and O'Brien 22,400 acres, which produce from the regular Permian levels in eastern Ward County.

The deepest active test in the district involves Amon Carter's Wasson 4-D, Gaines County sector of the Wasson field. It was drilling hard lime at 9005 feet, qualifying as the deepest hole in the north portion of the Permian basin. No shows have been recorded below the 7100-foot level. Open hole prevails below the 7-inch casing seat at 5189 feet. It is scheduled to be carried to the Ordovician beds, or 10,000 feet. Carter's Wasson 5-D, 1760 feet south of the above project, has been idle for several weeks at 6881 feet, with 7-inch pipe cemented at 5655 feet. Pipe was set for a production test at 5842 feet in saturation passed up by Wasson 4-D, but this zone failed to yield commercial production after acid treatments. The 6600-foot lime saturation also proved disappointing, although the original deep test recovered 2 to 3 barrels of green oil hourly on swabbing test after using 4500 gallons of acid by the dump method at 6274-6610 feet.

The logging of 3 oil-saturated zones in the lower Permian and below the regular oil level by Amon Carter's Wasson field tests lends encouragement for deep prospecting elsewhere in the north end of the basin. Gulf Oil Corporation is the first to follow through on the new information in the drilling of Mallet 4, SE SW SE PSL Section 5, Block X, Terry County semi-wildcat, coring at 5630 feet. The latter is 2½ miles west of production on the south end of the Slaughter field and passed up nominal oil saturation in the regular pay at 5056-74 feet followed by water at 5077-5166 feet without running pipe. This projected deep test is near the center of the company's 10,481-acre Mallet lease.

Atlantic Refining Company and Ray Rhodes' Dean-Slaughter 1, Cochran County semi-wildcat and 2¾ miles west by south of Duggan production, was awaiting acid treatment after plugging back from water at 5150 feet to 5115 feet. Saturated lime at 5078-84 feet and 5102-20 feet is considered ample for a small producer.

Production spread for the Ellenburger zone in the southeast portion of the Sand Hills field, Crane County, is heralded by the recovery of oil saturation at 5767-94 feet by Humble Oil & Refining Company's Tubb 46-X, SW NE PSL Section 11, Block B-27, with top



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of Ellenburger called at 5762 feet. String of 5½-inch casing was cemented at 5763 feet for completion without making a drill-stem test. It is ½ mile north of a 5178-barrel natural producer from the same horizon, and is 16 feet lower than the latter on the dolomite marker. Gulf Oil Corporation et al's Tubb 2-A, offsetting the two deep producers in the southeast extension sector, was drilling at 4830 feet.

Two minor extensions for the regular Permian horizon in the northeast portion of the Sand Hills field are pending. Gulf Oil Corporation's Waddell et al 15, ½ mile south of production, yielded oil and gas on drill-stem test at 4420 feet, and 5½-inch pipe has been cemented at 4352 feet. The company's Waddell et al 14, ½ mile east of a prolific oil and gas well, is showing for a large producer at 4524 feet.

Gulf Oil Corporation's University 1-F, Crane County wildcat on a line between the Church & Fields and Sand Hills areas, was awaiting orders in chert and lime at 8410 feet, having failed to reach the Ordovician series, and is due to be abandoned.

Magnolia Petroleum Company elected to classify its Sealy 2-41, north outpost for the South Magnolia-Sealy pool, Ward County, as a junked hole after successfully combatting a gas blowout at 2880 feet. The well was out of control 5½ days, rated above 50,000,000 feet of wet gas daily. The gas interfered with highway and rail traffic and caused suspension of operations of a carbon black plant for a period. Eight truck-mounted pumps in addition to a pair of "mud hogs" hooked up to the battery of three boilers, with three alternate boilers on the opposite side of the location were employed to pump mud into the hole. Total of 4000 sacks of cement was used after killing the gas. Rig was skidded 933 feet southeast for Sealy 3-41, which was drilling at 260 feet.

Magnolia Petroleum Company has authorized another test for the recently discovered Simpson sand pool in northern Pecos County, and was drilling at 1670 feet on Markey 1, situated a short distance northwest of Taubert-McKee & Siemoneit's Crockett 1, which made a large natural flow at 5357 feet. The new project involves Sharp-State 1, southeast corner of H&GN Section 22, Block 9, and on 100-acre lease that expires next March. It is 1¼ miles northwest of the discovery and ⅝ mile west of an Ellenburger failure on the McKee tract which provided the information that resulted in the strike. Production from the discovery, prorated to 150 barrels daily, is hauled 28 miles by tank trucks to Gulf Refining Company's pipe line terminal at Monahans. Although the oil tests 43 gravity, the octane rating is similar to the Ellenburger production in the nearby Apco and Sand Hills areas, which are 50 percent below the district's average octane content.

Rated potential of 77 barrels on pump was established by Forest Development Corporation's Bradley 1, Ector County wildcat that has been in process of completion for a month. Actual capacity is estimated at 20 to 30 barrels daily. Production is from lime pay at 4310-77 feet after using 10,000 gallons of acid. Sulphur water was found at 4388-4410 feet, with an elevation of 3041 feet. The concern's Bradley 2, located in the southwest corner of the discovery section, was drilling at 3015 feet.

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North Texas

Mississippian Yields Oil in Jack County Wildcat

First production from the Mississippian limestone in Jack County was uncovered by Continental Oil Company's Robertson 1, M. J. Swan Survey, wildcat on a 1950-acre block that centers 7 miles southwest of Jacksboro. Formation tester used at 5340-86 feet yielded 240 feet of high-gravity oil and 60 feet of oil-cut rotary mud. No water was reported. Hole is uncased below the 7-inch pipe at 4650 feet, and production test through tubing is due to be made without running liner. Robertson 1 passed up small volume of high-pressure wet gas from Marble Falls lime at 4651-62 feet, and this gas may be revived should the flow from the Mississippian prove inadequate.

Top of the Mississippian was called at 5307 feet. First possible oil pay was noted in dark shaly-lime at 5345-50 feet, followed by course crystalline lime with good oil stain at 5350-60 feet. Oil-Stained lime and dolomite at 5360-75 feet is believed to be the Mississippian-Ellenburger contact. Final core at 5375-86 feet carried nominal saturation with evidence of gas.

Rathke Oil Company and R. C. Parker's Mosely 1, Eastern Jack County wildcat, was drilling shale at 4820 feet with the Mississippian as its next objective. Small flow of gas was passed up at 4498-4510 feet in the Bend, and the yield increased to 1,500,000 feet daily from sand at 4745-50 feet. Location is one mile west of Joplin and in the John Harrison Survey.

The Bend oil zone in the Hull-Silk field, Archer County, recorded a failure when Magnolia Petroleum Company's Rutty tested water at 4710 feet, although saturation was logged at 4651-96 feet. Top of Bend was called at 4605 feet. Hole has been plugged back to complete in Upper Strawn at 3759-93 feet. Gulf Oil Corporation's Siegel 24 was installing pumping unit after testing 80 barrels oil and 41 barrels water on 5-hour swabbing test. Bend saturation was logged at 4634-46 feet, followed by shale and dry lime to 4666 feet. Comparatively little oil appeared before acidizing.

Strawn oil production for Southwestern Montague County portion of the Fort Worth Syncline materialized when Walter Gant et al's Will Laird 1, 7 miles south of Bowie, yielded 67½ barrels of 42.7-gravity oil on 2½-hour swabbing test. Production is from 25 casing perforations opposite saturation at 4865-70 feet after plugging back from 6651 feet. Additional perforations are to be made near the same level before acidizing. It is 9½ miles southeast of the Owens-Hults 6050-foot Bend pool, nearest production. Oil saturation logged at 5848-58 feet in conglomerate member of the Bend, topped at 5690 feet, gave greater promise of production than the Strawn, but failed to make a commercial well when tested through casing perforations.

Britt Cranfill and Rodgers' McKay 1, Wise County wildcat and 2½ miles south of the Laird prospect, was drilling by sand pump at 5812 feet with the side-tracked hole bottomed at 5864 feet. It is to deepen to 7500-foot depth contract. Bend conglomerate at 5832-64 feet yielded small volume of free oil with rotary fluid.

Gulf Oil Corporation's Worsham 3, south outpost for the Ringgold pool, Montague County, recovered 690 feet of oil and gas-cut mud on drill-stem at 5752-5850 feet, having logged top of Bend at 5675 feet, or 46 feet low. Electric log placed conglomerate pay section at 5766-82 and 5818-24 feet. Walter Gant et al's Stine 1, 1-1/3-mile east outpost for the area, has not overcome water troubles in plugging back by stages from 5673 to 5600 feet.

Bonita 2-Pay Area

The Bonita dual-pay area continues to record the largest initial flows among the deep areas in the district. Sinclair Prairie Oil Company's Howard 5 flowed 448.8 barrels oil natural in two hours through tubing from upper conglomerate pay at 5227-42 feet for a potential of 5385 barrels. In the townsite sector, the company's West Bonita 2 swabbed 183 barrels oil in 18 hours from conglomerate at 5297-5303 feet, and was drilling at 5360 feet to try for flowing production in the 5400-foot zone. Southeast Bonita Unit 1 was drilling at 3690 feet. The company was starting operations on Northeast Bonita Unit 1, David Doty 3, M. M. Gilbert 2 and Howard 6, making total of six tests.

J. G. Hammond, Inc.'s Jester 1, Eastern Montague County wildcat on the Mallard prospect, was drilling shale at 5750 feet. Amon Carter et al's Allen 1, 4 miles northwest of Justin and in Western Denton County, was drilling sand and shale at 5990 feet. These are important tests in the Fort Worth Syncline, and both are above the Bend section. The Texas Company's Hutchinson 1, Northwestern Grayson County wildcat for the Delaware Ben faulted structure, resumed drilling after cementing protection string of 9⅝-inch pipe at 4487 feet.

Small volume of free oil was developed with salt water at two horizons by Tom F. Hunter et al's Fatheree 1, projected deep test for the Illinois Bend area, Montague County. Drill-stem test at 3394-99 feet yielded 15 feet of black oil, 15 feet of oil-cut mud and 90 feet of salt water. Second test at 3555-95 feet accounted for 135 feet of oil-cut mud and 150 feet of salt water, and late in the week the prospect was drilling shale at 3710 feet.

East and west offsets have been authorized by Jack Kadane et al to their Griffin 1, recently completed extension producer for the Griffin pool, Northwestern Archer County. Situated 4000 east of two flowing wells in the same Strawn zone, Griffin 1 flowed 650 barrels oil natural through casing in 7 hours from sandy-lime at 4337-39 feet, and later gauged 87 barrels oil in one-hour test through ¾-inch tubing choke. Stanolind Pipe Line Company is laying a 5½-mile 6-inch gravity line from K-M-A field to serve the area, which also produces from the 1600-foot sand. Kadane et al drilled the oil pay early in November, and deferred production test to acquire additional lease protection. The outpost logged top of Gunsight at 1748 feet, and top of Strawn lime at 4105 feet.

Pending shallow oil strike for Northeastern Wilbarger County is indicated for Big Six Oil Company's A. P. Morris 1, SEc H&TC Section 3, Block 14, 3 miles west by north of Harrold, with oil saturation in sand at 2905-15 feet. Seven-inch pipe is cemented on top of the pay for a production test. Second Strawn producer for the Fargo 6-well pool materialized when Amerada Petroleum Corporation's Folley 1, SWc NW H&TC Section 36, Block 15, swabbed 84 barrels oil in 9 hours after using total of 7000 gallons of acid in broken pay at 4460-4508 feet, with the hole bottomed at 4627 feet. Rig has been moved to Dodson 1-B, ¾-mile north outpost. Having failed to attract a pipeline connection, Amerada Petroleum Corporation is trucking the allowable production of its 5 wells to the Bell Oil & Gas Company's refinery at Grandfield, Oklahoma.

East Texas

Wood County Wildcat Prepares for Pumping Test

Pumping test is to be made by Bobby Manziel et al's Morrison 1, prospective Woodbine producer for the Hawkins structure, southeast Wood County, after plugging back to 4917 feet and reperforating casing with eight shots at 4909-4916 feet. Approximately 10 barrels of heavy black oil were recovered on 7-hour swabbing test, with the oil representing about 15 percent of the fluid. This wildcat cored the Woodbine pay in mid-October.

Rotary rig has been installed for drilling Jackson & Rotundi's Cobb 1, in the Hawkins townsite.

Other projected tests for the area may be held in abeyance to await the outcome of the town-lot operation since it is credited with being located favorably to determine the production possibilities of the Hawkins structure. Delta Drilling Company and Sells Petroleum Company's Beckham 1, G. W. Cowan Survey, projected Woodbine test for the Haynesville dome and 4½ miles northeast of Mineola, shut down after running surface pipe to fulfill lease requirements.

Delta Drilling Company's Dexter-Shell 1, ½ mile northeast of production in the Chapel Hill pool, Smith County, failed to encounter production from the Paluxy, topped between 5620-30 feet with an elevation of 425 feet, and was drilling at 5870 feet. It was intended as a Paluxy test, but may be continued to the Lower Trinity series.

Gulf Oil Corporation's Venters 1, west offset to the Travis Peak oil discovery in the Pittsburg area, Camp County, had the Georgetown lime between 4530-4560 feet, and was drilling at 5250 feet.

Production test for Frank Bryan and Farrell Drilling Company's Bevil 1, prospective Pettit and Travis Peak strike for the Horn Hill structure, Limestone County, will be deferred until the forepart of 1941 in order to complete lease title work. Gulf Oil Corporation has contracted to purchase Frank Bryan's interest in the well and the supporting block. The well has been idle at 4937 feet since October on the strength of this pending deal. A successful completion may precipitate a trend play from the Horn Hill area.

The completion of Magnolia Petroleum Company's Rutherford 1, west edge of the Talco field, pumping 130 barrels oil in 6 hours from Paluxy at 4278 feet, points to further expansion of production to the west. The Talco field, centering upon Franklin and Titus counties, extends in a general east-west direction for 12¾ miles.

Southwest Texas

Agua Dulce-Stratton Flank Test Shows Oil Possibilities

Flank exploratory work on the Agua Dulce - Stratton structure in Nueces County may result in the discovery of another important reserve. Following the setting of casing at 7503 feet, plugs were being drilled in F. A. Gillespie & Son's Dabney 1. Perforations will be made in a series of levels to test sands shown by electric log and sidewall cores. Details of the sand levels, however, were not released. The well, in Section 80, is two miles east of gas and distillate production in the main Agua Dulce field, and 3½ miles southeast of Banquette. This development has been active during the past several months with several sands being opened on the flanks of these fields. These wells, drilled on the down-dip side of the field, are producing oil, whereas the wells atop the main structure are distillate producers.

Gulfboard Oil Corporation et al's State 1, on the Mud Island prospect in Aransas Bay, Aransas County, continued to test. Three squeeze jobs were made of perforations at 9227-30 feet in an effort to kill the excessive gas pressure. The well is expected to open a new deep Frio sand oil field.

East of the St. Charles field discovery well in Aransas County, Continental Oil Company's St. Charles Company 3, was at 9035 feet with a protection string of casing set. The well will be carried at least 1500 feet deeper in search of new sands for the area. The prior operations were not as satisfactory as desired due to high gas pressures.

Although extending production only 660 feet northward, Magnolia Petroleum Company's J. H. Hamilton 1 opens additional area in the Lolita field of Jackson County to development. The well cored the sand at 5925-31 feet and was being completed. It ran about level with other wells in the north end of the field.

Magnolia Petroleum Company lost returns at 6548 feet in Seeligson 14, more than one mile north of the East Premont field in Jim Wells County. The well was attempting to circulate to bottom to drill ahead. It has had several sands which showed for production to widen this area to the north.

La Gloria Operators Committee (Magnolia Petroleum Company et al) plans to drill at least 20 wells on the LaGloria structure in conection with the development of the several sands in the Brooks-Jim Wells County field. These are for a recycling plant now under construction. The wells are to be driled by Gray & Wolf of Houston.

Start Wilcox Wildcats

Several more Wilcox sand wildcats were staked during the past several days in the South Texas Gulf Coastal area and others are planned for the immediate future. These tests bring about a more encouraging outlook to the plan.

Henderson Coquat has made a deal with Earl Rowe for the drilling of a 5800-foot test on a block near Campbellton in Atascosa County, which will carry the test through the Wilcox zone. The test is to be Brashears 1, Lovell Survey, and is on an 8500-acre block. Stanolind Oil & Gas Company, W. C. McBride, Inc., Humble Oil & Refining Company, Arkansas Fuel Oil Company and others have holdings in the general vicinity and are supporting the operation. It is on the up-dip trend of the field.

Quintana Petroleum Corporation is drilling a northwest outpost to the Washburn field of LaSalle County. The field was discovered by H. R. Cullen et al, but since the completion of the first well, drilling is to be carried on by the company.

At Sheridan in Colorado County, a new sand was encountered just below 8585 feet in Shell Oil Company's Plow Realty Company 3. The test had progressed to below 8900 feet, nearly 1000 feet into the Wilcox zone, and was to be drilled considerably deeper.

There are three other Wilcox wildcats drilling in South Texas at this time, being located in Colorado, Fayette and Lavaca counties, respectively. New projects are contemplated in Live Oak, DeWitt and Goliad counties by the first of the year.

The newest area expected to be given a Wilcox exploration is the Weser area in Goliad County where W. R. Davis & Company is developing the Cook Mountain formation. A small oil producer has resulted from the completion of Albrecht 1-B, perforated at 5240-52 feet.

A short extension to the shalow Cedar Creek field of Bastrop County was ef-

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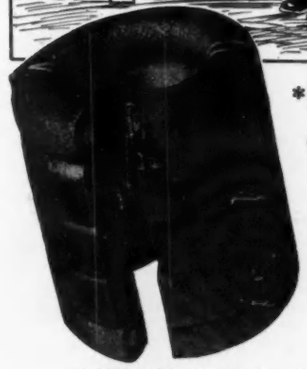

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fected in the completion of an excellent producer in Marts & Beavans' American National Bank of Austin. The well cored the Serpentine at 2150-72 feet, Dale lime at 2172-74 feet and was finished at the latter level, flowing 107 barrels per day through open tubing.

In Guadalupe County, E. E. Hillje's Erick Hopp 1, E. Smith Survey, and south of the Elm Creek field, found sand at 982-98 feet and was drilled to 1010 feet. It was being rigged up to pump, showing for an average well.

Texas Permits

Permits for drilling 111 wells were authorized last week by the Texas Railroad Commission, 198 less than were allowed the previous week.

There were 13 permits granted in the East Texas field, with 9 in Gregg, 3 in Upshur and 1 in Rusk County. Six locations were reported from the remainder of the East Central Texas area.

The North Texas district led the state with 27 locations, and the Southwest district was second with 20. Three permits were granted in the Panhandle, 14 in West Central Texas and 17 in West Texas. Gulf Coast producers were allowed to drill 11 wells.

Magnolia Pressure Drop

A pressure drop of 43 pounds in the main section of Smackover lime in the Magnolia field, Columbia County, Arkansas, between September 10 and November 30, was indicated by bottomhole pressure tests on 58 key wells. The pressure dropped from 3285 to 3242 pounds.

Texas Gulf Coast

Galveston Bay Program Yields First Oil Flow

Humble Oil & Refining Company found the first oil in the current intensive Galveston Bay program, and opened a third producing horizon at Red Fish Reef, Chambers County marine field. State 3-A-248, a mile northwest of the discovery, flowed 8 barrels of 35.6-gravity oil and no water hourly through ⅛-inch choke from Frio at 10,327-343 feet, with tubing pressure 1700 pounds. This production is the first oil found in Galveston Bay proper, and adds a new level to the two distillate horizons at Red Fish Reef. The discovery, State 1-A-247, was completed at 8814-16 feet for 25 barrels of distillate daily, while State 2-A-246, 1150 feet southeast of the discovery, flowed 228 barrels of 43-gravity distillate daily from 9941-55 feet.

To date, the entire Galveston and Trinity Bay campaign has been more successful than first anticipated, as there have been no failures at Red Fish Reef against three successes, a discovery at Fishers Reef, Trinity Bay, after three failures, and two failures in the "B" area southwest of Red Fish Reef. The company's State 2-C-46, discovery at Fishers Reef, 11 miles southwest of Anahuac, 4 miles offshore, was still waiting on cement squeezed through perforations at 8961-63 feet when high gas/oil ratio developed. State 5-C-45, offsetting the discovery, was drilling past 7893 feet in shale, while Standard Oil Company of Texas-Salt Dome Oil Corporation's State 1-47, 3000 feet northwest of the discovery, was driving piling. Humble Oil & Refining Company had three tests active at Red Fish Reef: State 7-A-264 was drilling past 9710 feet in shale, State 8-A was shut down at 200 feet, and State 9-A-263 was drilling past 4175 feet in shale. The campaign is a race to obtain production on each of the various state tracts to avoid surrender of leases in 1941-42. In another marine area, the Gulf of Mexico prospect near Sabine Pass, Jefferson County, Hall-Jordan and British American Oil Company abandoned State 1-72 after drilling to 7600 feet, finding gas sand at 7393-97 feet, plugging to 6491 feet, drilling out to 7595 feet in heaving shale.

H. C. Cockburn added three wells to the new Dyersdale field, Houston area, Harris County: Burkitt 4 gauged 366 barrels of 22-gravity oil daily through ¼-inch choke from perforations in Frio at 4051-61 and 4063-67 feet, with tubing and casing pressures 180 and 220 pounds; Burkitt 5 made potential of 416 barrels through ¼-inch choke with perforations at 4060-64 and 4070-74 feet, tubing and casing pressure 200 pounds, and Burkitt 10 made 414 barrels daily ¼-inch choke, tubing and casing pressures 200 pounds, from sand topped at 4068 feet, Cockburn's Burkitt 8 was perforated in a 10-foot section at 4070 feet, swabbed oil and wash water, pulled and reset screen and liner, and was standing.

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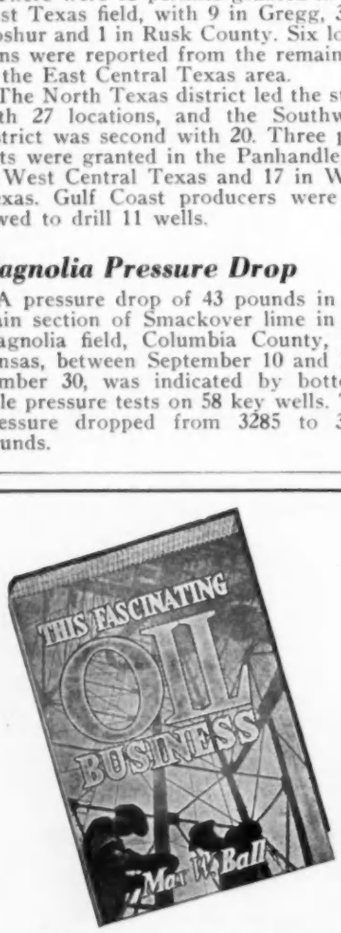

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a major extension to the South Gillock portion of the Dickinson field. Kohfeldt 1-B, T. W. Johnson Survey, 3800 feet southwest of production, was perforated at 8700-20 feet and prepared to test. Five and one-half inch casing was landed on bottom at 8755 feet.

Phillips Petroleum Company resumed operations on two important tests in the Chocolate Bayou area, Brazoria County, Houston Farms Development Company 1, Perry & Austin Survey, drilled plugs from casing set at 9966 feet to continue to contract depth of 10,500 feet. Housh & Thompson are drilling the well. Company's Triangle Development Company 1, a mile east of Andrau 1, 11,430-foot distillate producer, was coring at 10,450 feet. Contract depth is 11,500 feet.

New sands for both northwestern and southeastern portions of the Ogburn field, Harris County, may result from tests underway. In the southeastern sector, offsetting discovery on the south, Christian Carpenter Drilling Company drilled plug from Backen 1, farmout from Pan American Production Company, for test of new section at 6970 feet. Tests will also be made of the discovery level, cored at 6904-35 feet, and a new section at 6450 feet. Drill-stem test of the later section through perforations at 6453-59 feet recovered 300 feet of oil with no water in 14 minutes, ½-inch chokes, 500 pounds pressure. Test at 6460-70 feet recovered 1000 feet of oil and 1000 feet of water in 20 minutes, ¼-inch chokes, pressure low.

In the northwestern portion of the field, L. M. Josey plugged back from 6619 and perforated at 6450-54 feet, where drill-stem test recovered 1000 feet of pipe-line oil and 200 feet of brackish water, with working pressure 1500 pounds, bottom-hole pressure 2300 pounds. A production test was being made of this section. This test has already obtained strong indication of productioin from several new levels. At 6616-19 feet, it flowed gas and distillate under 1700 pounds pressure. At 7020-28 feet, the flow was 25 barrels of 38-gravity oil and salt water daily. Sand at 7130-40 feet showed gas and distillate, and did another at 6767-73 feet.

Flood waters, which caused a complete stoppage of operations in some fields a week ago, receded slowly and continued to prevent or hamper operations. The Brazos River, which flooded the Thompsons area and West Columbia fields, was still at flood stage. The South Liberty field was almost isolated by break of a levee holding the Trinity River. Skelly Oil Company's McDonald 1, Pledger area wildcat, was unable to resume operations, although Superior Oil Company was able to reenter McWhorter 1, Magnolia area Wilcox test in Montgomery County.

General Crude Oil Company scored a short extension for the deep southeast flank production at Esperson dome, Liberty County, completing Zaruba 1 for 800 barrels daily through ¼-inch choke, with tubing and casing pressure 1250 and 1000 pounds.

Wynn Crosby Drilling Company will drill Griffith 1, projected 9500-foot wildcat in the Cayce Survey, Halls Bayou area, Brazoria County, for Strake Petroleum Corporation. Location is 3½ miles southwest of the Alta Loma field, with objective the 9100-foot sand which produces in that field. J. Newton Rayzor staked Christian 1, Sun Oil Company farmout, first test for the Chenango prospect of Brazoria County. Loffland Brothers will drill this 9500-foot wildcat in the Wm. Parker Survey.

Louisiana Gulf Coast

Third Sand at South Crowley; West Bay Test Encouraging

Humble Oil & Refining Company recovered Freeland 1, Section 27-10s-1e, ½ mile southeast of the two producers at South Crowley, Acadia Parish, from apparent failure by establishing a new producing sand, third for the field. From perforations at 7093-97 feet, the semi-wildcat flowed 3 barrels of 34-gravity oil daily through 3/16-inch choke, with tubing pressure 250 pounds, casing pressure 1500 pounds. Gas/oil ratio was about 20,000/1. The test was shut in for storage and reperforation to cut the high gas flow. Rig was moved to Leger 2, second producer, for work-over operations. Freeland 1 was plugged to 7125 feet after tests on deeper horizons failed. The multiple sand conditions here are surprising in view of the thorough prospecting to which this structure was subjected. Four deep failures were drilled before Humble Oil & Refining Company drilled Boyd-Finch 1, semi-commercial discovery which was followed by three failures. The 1940 discovery, Leger 1, produced 800 barrels of 36-gravity oil daily from 7602-12 feet, Leger 2 produced 500 barrels of 35-gravity oil from 8917-22 feet.

Superior Oil Company exhibited confidence in the Section 28 Dome, St. Martin Parish, by staking St. Martin Land Company 1, Section 20-9s-7e, 900 feet north of Stuart 1, the apparent discovery which flowed 980,000 feet of gas daily and an estimated 12 barrels of 53.7-gravity distillate through 9/64-inch choke from 9129-95 feet, where 5 sets of perforations were made. Tubing pressure was 2500 pounds. Operators elected to drill deeper before retesting, had cleaned out to 9400 feet, and will go at least 350 feet deeper.

Gulf Oil Corporation's Timolat 1-B, Section 36-22s-30e, wildcat in the West Bay area, Plaquemines Parish, joined the ranks of potential pool openers as operators reamed to 7120-59 feet, and washed out to set 9⅝-inch casing. The test, third for the 2-year-old seismograph prospect, was reported to be running 200 to 350 feet high down the course of the hole with the company's Buras Levee Board D-1, Section 6-23s-31e, 10,100-foot failure. Timolat 1 logged sand section at 5046-67 feet which showed a high porosity and resistivity on electric curve.

Plymouth Oil Company revised its estimate of the Bayou Pigeon field, 1940 Iberia Parish discovery, staking Iberia Cypress Company 1, Section 14-12s-10e, a mile northwest of production, and Kyle Lumber Company 1, Section 24-12s-10e. Company's State 1, Section 24-12s-10e, tested salt water at 8054-62 feet and was waiting on cement after squeezing perforations. The test is evidently adjuged to far south, according to the position of the new locations. The company completed discovery and confirmation at 8050 feet for good producers of 35-gravity oil.

Lease play on the Gretna prospect, Jefferson Parish, near the approach to the Kingfish P. Long bridge, was brisk with one operator reported paying $90,000, half cash, half oil, for 204 acres 1400 feet north of Titanic Oil Company's Marrero Land Company 1, a test on Shell Oil Company farmout acreage, which seems certain to produce. Phillips Petroleum Company entered with the purchase of 50 acres north of the well site. Titanic Oil Company was drilling below 6800 feet in side-tracked hole in the wildcat, which blew out from 9843 feet a month ago, being estimated at a 450-barrel daily distillate flow. Drill pipe stuck in hole was cemented in with intention of completing through drill stem, but state objections forced the side-tracking job.

In Acadia Parish, 9000 feet north of the West Mermentau field gas discovery, H. M. Naylor abandoned Medlinka Estate 1 at 7521 feet. The West Mermentau well was completed at 9000 feet. Union Oil Company of California's Louisiana Land & Fur Company 4, Section 15-15s-1e, 1½ miles northeast of the Schooner Bayou discovery, Vermilion Parish, was still cutting and pulling stuck drill pipe, with 2500 feet of pipe yet to be recovered. Union Sulphur Company's School Board 1-B, 800 feet east of the discovery, was drilling past 9800 feet. The field flows from 10,536 feet. Fohs Oil Company's Mulvey Irrigation 2, southwest flank of Gueydan, same parish, 640 feet southeast of a recent 9254-foot gas distillate discovery, was drilling near 7300 feet. Superior Oil Company set 9⅝-inch casing at 750 feet in Schwing Lumber Company 7, Section 74-9s-10e, flank test at Bayou Blue, Iberville Parish, and was waiting on cement. The company was still cutting and pulling casing in Grief Cooperage Company 1, Section 30-9s-10e, on the southwest flank of Bayou Blue. Navarro Oil Company entered this field, staking Wilbert Mineral Corporation 1, Section 74-9s-10e, west of Superior Oil Company's deep production and east of T. G. Markley and Wynn Crosby's shallow production.

Texas Company Adds Health Service

In a completely equipped wing of its Houston offices, The Texas Company now offers employes periodic health examinations, with basal metabolism, electrocardiograph and X-ray apparatus, supplemented by clinical laboratory, for complete health audits.

It is believed that periodic health checks will enable employes to become aware of incipient disease, and they may apply to their physicians for treatment.

Dr. C. S. Gates, who has been medical consultant for The Texas Company in Houston, will be in charge of the health service on a part-time basis. He will be assisted by a trained nurse, on full-time duty in the health service rooms, who is also qualified to make any required chemical, serological or bacteriological tests demanded.

In announcing the service, J. S. Leach, vice president, said: "Good health is at all times the essence of real security for the individual and the nation. In these times of stress and urgency in preparing for national defense, however, it is of added importance that a healthy working force be maintained. . . . Industry is most willing to do its part by looking after its 'human machinery' as well as to its mechanical equipment."

North Louisiana

Claiborne Parish Wildcat Gasser Has Spray of Oil

Skelly Oil Company and associates' Volentine 1, NW NW 31-20n-6w, five miles west of production in the Sugar Creek field, Claiborne Parish, showed estimated 25 million cubic feet of wet gas with a spray of oil last week when tested, following perforation of casing in the Travis Peak from 6317-32 feet, and operators planned to squeeze perforation and retest in an effort to bring the well in as an oil producer. Total depth is 6507 feet. The test was drilled by V. A. Hardin who later sold controlling interest to Skelly Oil Company. Sun-Ray Oil Company is also part owner. Since the showing in the Travis Peak considerable time has been spent in curing titles. With elevation of 404 feet this test topped anhydrite stringer at 4394 feet and picked up massive anhydrite at 4560 feet. In a core from 4816-24 feet, the last 2 feet showed gray lime with live oil in the Glen Rose and from 4824-40 feet 1 foot of shale and lime showing oil and 1 foot of lime showing oil was logged. The test also logged an oil showing in a core from 5023-28 feet. Base of massive anhydrite was 4718 feet.

J. D. Carruthers and associates ran electrical log to bottom at 9000 feet, contract depth, in Burgess-Simmons 1, C W½ SW 2-20n-5w, second Lower Marine test drilled in the Lisbon field, Claiborne Parish. Operators report three showings at different depths in the Lower Marine. Location is two miles southwest of the small gas/distillate Lower Marine producer of Carruthers and associates, Roberta Vaughan 1, NE NW 36-21n-5w. Burgess-Simmons 1, also, logged a sufficient showing in the Travis Peak to cause several basal Glen Rose lime oil producers at Lisbon to deepen to Travis Peak. In the Lower Marine this test logged gas/distillate showings at 8398-8425 feet where a drill-test showed 30 to 40 million cubic feet of wet gas daily with bottom-hole pressure of 3730 pounds. It also logged 2 feet of sand at 8676-78 feet where it blew out with drill stem in hole which required several weeks to remove. Latest showing in the Lower Marine was gas/distillate saturation in cores from 8779-8812 feet, with some saturation showing in a core from 8813-31 feet.

Two miles north of Lisbon production, Union Producing Company's Meadows A-1, C NE 18-21n-4w, to be drilled to the Smackover lime, drilled sand rock at 10,128 feet.

Three wildcat tests "in the trend" just south of the Angelina-Caldwell Flexure were abandoned, one each being located in Franklin, Grant and LaSalle parishes. Despite this reverse, this area continued to see the major part of leasing and geophysical activity. Leasing last week was centered in Caldwell Parish where V. V. Ryan and associates made location for a Wilcox sand test at Louisiana Central Lumber Company 1, NE NE 16-12n-3e. H. M. Henderson, David J. Flesh, and J. B. Yarbrough led leasing in that parish during the week, most of the leases being taken in Townships 13 and 14 north, Ranges 3 and 4 east. S. Rhodes and J. F. O'Meara made location for a Natchitoches Parish wildcat, Prudential 1, NE SE 36-11n-10w.

The shallow Olla field, LaSalle Parish, producing from the Wilcox at 2300-2400 feet added 7 new oil wells during the week in North Louisiana's list of 19 completions, which included 14 oil wells, 1 gas well and 4 failures, which included the 3 abandoned wildcats. The shallow Pine Island field, Caddo Parish had 6 oil wells and Cotton Valley, Webster Parish, had 1.

Louisiana Permits

Fifty-eight drilling permits were issued last week by the Louisiana Conservation Commission, of which 33 were in North Louisiana, in the following parishes: Bienville 1, Caddo 11, Claiborne 2, DeSoto 2, Caldwell 1, LaSalle 9, Sabine 3, Union 1, Webster 2, and Winn 1. The 25 in South Louisiana follow: Acadia 3, Ascension 1, Avoyelles 1, Calcasieu 2, East Baton Rouge 2, Iberia 3, Iberville 1, Jefferson 2, Jefferson Davis 1, La Fourche 2, Plaquemines 4, St. Mary 1, Terrebonne 2.

Arkansas

Magnolia East Edge Test Makes 300 Barrels Initial

The 115th oil well for the Magnolia field, Columbia County, Arkansas, was completed last week at Louark Producing Company's A. W. Gunnels B-2, NE NW 20-17-19, for 300 barrels daily. It was an east edge test and the same company started moving in for an east offset, D. R. Booth 2, NW NE 20-17-19. Whether this location will produce is regarded as problematical as the eastern edge limits are believed somewhere near this location. In A. W. Gunnels B-2 top of the Buckner was 7349 feet, top of the Smackover lime, 7449 feet, top of Reynolds lime 7461 feet and top of porosity, 7498 feet, and bottom at 7530 feet. Completion of this well almost linked the Magnolia and Village fields.

The Atlanta field, Columbia County, which has been inactive for several months, following apparent defining of production in several directions, received a new location when G. Scott Hammond staked for a test in C NE NW 16-18-19, a west offset to Tide Water Associated Oil Company's Mack 1, and an edge location on the west.

In the Dorcheat field, Columbia County, where there is one drilling operation, McAlester Fuel Company made location for K. J. Sayers 2, C SW SE 10-18-22.

A shallow wildcat was abandoned in Clark County.

Arkansas Permits

One drilling permit was issued last week by the Arkansas Oil & Gas Commission, as follows: Union County—Marine Oil Company's Union Sawmill A-4, NW SE SE 3-18-13.

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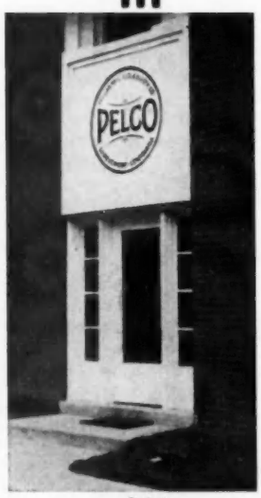

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Humble Extends Leasing To Mississippi Coast

Humble Oil & Refining Company which since last spring has leased many thousand acres of land in south Alabama and north Florida, is now leasing extensively in the counties of Mississippi that border Mississippi Sound, a part of the Gulf of Mexico. The company has leased 30,000 acres in Harrison and Hancock Counties, Mississippi, coast counties, from Ingram Day Lumber Company of Lyman, the acreage being in townships 4, 5, 6 and 7 south, ranges 12, 13 and 14 west, some of the acreage spreading into Pearl River County. In Jackson County, another coast county, it has leased over 12,000 acres.

In Copiah County, south Mississippi, Wesson Oil Company has assigned 3200 acres to Ze-Nac Oil Company, in township 10 north, range 9 east. Tidewater Associated Oil Company is taking leases in township 8 north, range 15 west, Covington County. Magnolia Petroleum Company has secured some leases in township 10 north, range 10 west in Jones County, and J. T. Mackey, in the same county, has leased a block in township 8 north, range 10 west. Stanolind Oil & Gas Company is leasing in township 6 north, ranges 14 and 15 east, Lauderdale County, near Meridian. Tidewater Associated Oil Company is filling in its Lawrence County block in township 5 north, range 11 east. Wanette Oil Company has assigned Humble Oil & Refining Company a 3500-acre block in township 5 north, ranges 6 and 7 east, Lincoln County.

Magnolia Petroleum Company has secured 4500 acres from S. P. Borden in Stone County, acreage being in township 2 south, ranges 10, 11, 12 and 13 west. H. G. Lewis leased 1500 acres in Wayne County from the Federal Land Bank, only half mineral rights being affected.

Leasing also continues brisk in Alabama. In Franklin County, C. J. Brown who has a 50-000-acre block, is adding acreage in townships 8 and 9 south, range 12 west. Sun Oil Company secured 1000 acres in township 12 south, range 13 west, Marion County. In Mobile County, Humble Oil & Refining Company placed on record 51,000 acres of leases secured last summer in townships 1, 2 and 3 south, and 1 north, and ranges 2, 3 and 4 west, in Mobile and Washington Counties, southwest Alabama. In Washington County, this company acquired 13,325 acres from Turner Pine Company, township 5 north, range 1 west, in township 5 north, range 2 west; in township 2 north, range 4 west; and in township 5 north, range 1 east and township 5 north, range 2 east.

In Tructlen County, Georgia, Glenn D. Rose and associates shut down at 2135 feet in sand in James Fowler 1, six miles northeast of Soperton, where they reported a show of live oil in pits from one foot of sand at 2134-35 feet.

Two wildcats were abandoned last week in Mississippi, one in Attala County, and the other in Yazoo County. The latter was Joe Dawson's Mrs. J. L. Wilson 1, SW SE 30-12n-1e, which showed some oil with salt water in the Wilburn sand at 4866-76 feet but was abandoned at 5016 feet.

California

Yorba Linda Field Test to Deepen to Kraemer Sand

Chicksan Oil Company has awarded contract for a deep test in the Yorba Linda field, Orange County, and will deepen from about 3800 feet. No indication has been given as to the objective, except that operator will prospect below the Kraemer sand for a conclusive test.

At Oxnard, Ventura County, Hawaiian American Exploration Company's Farrell 1A, wildcat in Section 5-1-22, cored streaks of gray sand, a small portion of which showed faint cuts between 5030 and 5085 feet. It is now standing suspended, bottomed at about 5100 feet in what is believed to be Pliocene. To the east, Vaca Oil Company and El Rio Oil Company encountered a heavy tar zone several years ago from which some production was obtained. Hawaiian may continue the project in an effort to examine the same zone should it be present at greater depth.

One location south of Union Oil Company's outpost failure, Kernco 76-27, in the Rio Bravo field in Kern County, Superior Oil Company cored the oil sand in Fink 4 at 11,387 feet and has bottomed the well at 11,420 feet for completion. The company's Crites 72-28, outpost on the northeastern flank of the field, Section 28-28-25, has been bottomed at 11,480 feet with water string set at 11,233 feet. Initial flow was esti-

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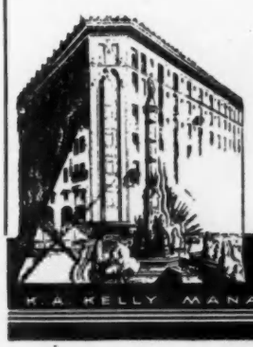

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mated at 269 barrels daily, net oil, 39-gravity.

A production test of Richfield Oil Corporation's KCL 2, wildcat deep test in the Wheeler Ridge area, was delayed when too much cement was drilled out in preparation for a water shut-off test. It was necessary to re-cement before a shut-off test could be made. Bottomed at 10,934 feet, it cored some 60 feet of Eocene sand carrying what has been termed well-saturated coarse oil sand. It is also reported that oil-stained sand was encountered from 10,635 to 10,660 feet, but that portions of sands on electric log indicated poor saturation. Zone examined is characterized as more promising than at company's KCL 1, 1800 feet northwest, which produced oil for a limited period.

Although showings are characterized as very questionable, Kern Line Oil Company is understood to be considered running casing on its wildcat test in Section 19-11-19, Grapevine area, Kern County, three miles southeast of Richfield Wheeler Ridge prospect. Bottomed at 8261 feet in gray sandy shale, electric log was run and hole reamed to bottom. At 8205 feet, Obesa zone was encountered with one-foot of good oil sand at 8212-13 feet.

In the Lost Hills area of Kern County, The Texas Company staked location for a shallow test in Section 2-26-20, Theta 2-28.

Michigan

Michigan's Deepest Test Blows Out and Catches Fire

Gulf Refining Company's Bateson 1, deep test in Section 2-14n-4e, Bay County, blew out a nipple below 6000-pound test and fired an estimated 20,000,000 to 30,000,000 feet of gas coming from lower Salina at 7775 feet.

Fire took out 136-foot derrick within 10 minutes. None of the five drillers on duty were injured. Kinley Brothers, of Fort Worth, had been contracted to kill the well.

See Story Page 24

The well, deepest ever drilled in Michigan, had been shut down since December 29 with drill pipe on bottom and gate closed after a mud blowout that cleaned hole when an estimated 20,000,000 to 30,000,000 feet of gas was encountered. Casing-head test showed rock pressure of 3200 pounds.

Crew was preparing to set high-pressure blowout preventers before resuming drilling for Trenton and St. Peters (Wilcox) objectives at 9000 to 11,000 feet.

Red Daniels, drilling superintendent for Parker Drilling Company, said fire might mean loss of hole. Formation is chiefly rock salt with breaks of shale and Anhydrite. Yellow burning of fire indicated salt was being blown out in great quantities, and it was feared drill pipe would be trapped by cavings.

With well burning apparently unabated after 13 hours, Salina gas pay took on added commercial significance. Gas may be coming from top of Niagaran limestone.

The Pure Oil Company's Payne 1, CN½ NW NE 35-20n-6w, Clare County, west offset (1320 feet) to Sun Oil Company's State A1, wildcat producer, was 21 feet low on the Dundee at 3812 feet and abandoned at 3827 feet. It was the first follow-up completion to Sun Oil Company's 45-barrel pumper discovery, and also discounted early hopes that the well and Rowmor-Hughes' Wyman 1, Section 29, three miles west, were in the same producing closure.

Completion of the first flowing well in Georgetown township, Ottawa County, southwest of the Grand Rapids field structure, by Fisher-McCall, Inc., may lead to more intensified development in that district. Mackus 1, SE NE NW 2-6n-13w, flowed 125 barrels after acid from Traverse at 1777 feet. Previous completions were small pumpers.

Welsh Oil Company shut down for orders on Cussen 1, Section 5-12n-16w, Muskego County wildcat, after the Traverse failed to take an attempted 1000-gallon acid treatment. Test topped Traverse at 1829 feet, and carried free oil at 1832 feet.

Burks White has taken up 4000 acres of leases in Union Township (14n-4w), Isabella County, and announced intentions to make a Dundee test this winter.

Fisher-McCall, Inc., J. T. Norris and Byrum McCallum, of Grand Rapids, announced intentions to drill a 900-foot Monroe-lime test this winter in Presque Isle County, after a core-testing program. The board of supervisors of Presque Isle posted a $25,000 bonus offer in 1935 to be paid the first individual or company who drills a 200-barrel oil well (for 10 consecutive days) in the county. If the proposed test is carried through, it will be the first drilled in the county since the offer was made.

Rocky Mountain Area

Wasatch Sands Provide New Wyoming Gas Field

A new gas field was opened up when Vermillion Creek Oil Company completed Amelia Horrocks 1 on the East Hiawatha structure, Sweetwater County, Southwest Wyoming, for an initial flow of 3,000,000 feet daily. Located in SW SW SW 7-12n-99w, it was completed in the Wasatch sands at 3504 feet. The 8¼-inch production casing was set on top of the sand at 3440 feet. Gas will be taken by Mountain Fuel Supply Company for delivery into its line to Salt Lake City.

On the Middle Baxter Basin gas structure, Sweetwater County, Red Desert Corporation's Edith Aspden 1, CNW SW NW 34-18n-103w, extension and deep sand test, was a failure in deep Pennsylvanian objective formation. It was being abandoned at 6302 feet in the Weber formation (Tensleep), topped at 6158 feet. Park City (base of red beds) was topped at 5656 feet.

On Mahoney Dome, Carbon County, Sinclair-Wyoming Oil Company was preparing to deepen into the Tensleep section in Mahoney 2-A, CSW NE 34-26n-88w, which completed in May, 1939, for 80 barrels of oil initial at 4507 feet.

UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Clark County (Wildcat)—		
Coker & Grieves, Sullivan 1, 2-11-20	*	619
Columbia County (Dorcheat)		
Lion Oil Ref., Dickens 1, 16-18-22	225	8940
Columbia County (Magnolia)—		
Louark Prod., Gunnels B-2, 20-17-19	300	7530
Union County (Urbana)—		
M. H. Marr, Tillman 1, 9-18-13	*	3045
Marine Oil Co., Brown 2, 10-18-13	425	3000
Union County (Rainbow City-Nick Springs)—		
Harry Porter et al, No. Cent. Texas Co. 1, 5-18-14	*	3939

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Fresno County (Coles Levee)—		
Richfield, KCL-A 43-33	1720	9190
Kern County (Greeley)—		
Superior, Moore 2	1560	11,490
Kern County (Rio Bravo)—		
Union, Kernco 58-34	2006	11,497
Kernco 76-27	*	11,576
Kern County (Ten Sections)—		
Shell, KCL A-23-29	2182	8235
KCL A-36-29	2299	8351
KCL A-45-30	825	8220
Kings County (Pryamid Hills)—		
Tide Water, West Slope 31	*	1970
Los Angeles County (Dominguez)—		
Union, Challender 80	588	7414
Los Angeles County (Long Beach)—		
Shell, Cresson 5	45	5004
Texas, Davidson 10A-11	288	3306
Los Angeles County (Seal Beach)—		
Continental, Bixby 44	165	5604
Los Angeles County (Wilmington)—		
Brain, Cooper & Haney, No. 2	200	3537
Selegna Pet. Co., No. 6	75	3530
Union Pacific, UP 161	798	2945
Orange County (Huntington Beach)—		
Signal O. & G., Signal-Bolsa 24	803	3730
Southwest Explor. Co., State 33	No Est.	4250
Ventura County (Cat Canyon)—		
Union, Bell 11	899	5800

Colorado

Company, Well and Location	Init. Prod. Bbls.	Depth
Moffat County (Hiawatha)—		
Mountain Fuel Sup., Wilson 6-B, cnw se 14-12n-100w	¶¾	3512

*Failures; †Junked; ¶Million cu. ft. gas.

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Bond County—		
Spindler Inc., Fee 1, nw nw ne nw 10-6n-2w	3	1019
Clay County—		
D. Miller, Smith 1, ne sw sw 15-3n-7e	*	3033
Clinton County—		
Adams O&G, Copple 25, se se sw 35-2n-1w	80	1369
Edwards County—		
I. G. Watkins, Conover 1, ne se sw 13-2s-10e	*	3260
Conover 2, ne se sw 13-2s-10e	5	1710
Superior, Fewkes 2, ne nw nw 18-2s-11e	84	3190
Fayette County—		
D. B. Lesh, Haynes 1, sec nw sw 35-6n-2e	*	1665
Texas, Yakel 14, se nw se 6-6n-3e	25	1586
Magnolia, Clow 25, ne se ne 5-7n-3e	180	1553
Carter, Owen 7, ne ne nw 17-7n-3e	48	1525
St. Pierre 4, sw nw ne 1-8n-3e	96	1537
Franklin County—		
Venorsky, Auten 1, sw se sw 22-7s-4e	*	3202
Benedum-Trees, Chenault 4, sw se se 27-7s-4e	220	3158
J. A. Langenfelt et al, Sanders 1, nw ne nw 35-7s-4e	50	3084
Gallatin County—		
Snowden-McSweeney, Frye 1, se ne nw 19-8s-10e	*	2781
Hamilton County—		
Texas, Davis 3, sw nw ne 7-6s-7e	5	2670
Woodriver Dev. Co., Walker 1, sw ne nw 26-4s-7e	*	3513
Exchange, Friel 9, sw ne se 34-5s-6e	150	2961
Shell, Porter 2, ne sw se 34-5s-6e	210	2960
Ohio, Grimes 1, nw nw nw 2-6s-6e	110	2951
Jasper County—		
M. T. Schieks, Payne Hrs. 1, s½ ne ne, 5-5n-10e	780	2808
Pure, Shinn 1, c w½ sw ne 8-5n-10e	182	2813
Dickerson-Harvey Cons. 1, e½ nw nw 17-5n-10e	1058	2820
Adams 2, w½ sw ne 20-5n-10e	1146	2820
Wagoner 3, ne ne 17-6n-10e	237	2800
Continental Oil, Toland 1, ne ne sw 34-7n-8e	*	3224
Jersey County—		
Hughes Pet. Co., Kallall 1, sw se se nw 22-8n-12w	*	1220
Lawrence County—		
Robinson et al, Warren 1, nw nw ne 29-3n-12w	10	1898
Macoupin County—		
O. Z. Smith, Kline 1, c ne se 7-9n-7w	*	1380
Marion County—		
Texas, Chance 2, c n½ ne se 5-2n-2e	*	2296
Shanafelt 10, ne ne ne 16-2n-2e	124	1890
Clevetex Prod. Co., Squibb 1, s½ se se 29-3n-3e	*	2500
Montgomery County—		
Kessler et al, Novak 1, se ne nw 11-7n-4w	*	907
J. E. Hood, Dambacher 1, se ne se 16-12n-5w	*	645
Richland County—		
Pure, Mattoon Cons. 1, c w½ sw ne 7-4n-10e	533	2945
St. Clair County—		
Tarlton Oil, Fee 4, n½ se se 28-1n-10w	25	538
W. W. Strickler, Frye 3, nw sw ne ne 33-1n-10w	180	747
C. S. Wise, Tarlton 2, nw nw ne ne 33-1n-10w	105	695
Harris et al, City Park 1, c nw se 34-2n-9w	*	1629
Wabash County—		
Snowden & McSweeney, Seibert 3, se ne nw 34-2n-13w	*	2666
Bob O'Meara, Felty 1, nw ne nw se 17-1s-12w	75	2050
Tide Water, Buchholz 4, nw se ne 9-2s-13w	100	2425
C. E. Skiles, Elkins 2, sw c sw nw ne 29-2s-13w	20	1769
Washington County—		
Mudge Oil, Brown 1, cw½ ne sw 23-1s-1w	240	3140
Wayne County—		
Pure, Miller 3, ce½ se sw 5-1n-8e	238	3095
Bates 3, w½ ne ne 8-1n-8e	252	3100
White County—		
Noah & Morrison, Kershaw 1, sw nw ne 22-3s-10e	*	2937
Arrow Dr. Co. et al, Hon 1, c ne sw sw 33-3s-14w	110	2617
Mabel Dr. Co., Smith 1, sw sw sw 4-4s-14w	80	2571
Herndon Dr. Co., Bond 5, 100 ft e of sw sw ne 8-4s-14w	140	2712
Pure, Potter 9, se nw sw 9-4s-14w	168	2842
W. W. Gray, Fee 1, se sw ne 17-4s-14w	245	2708
Ryan Oil Co., Bramblett 2, se nw se 17-4s-14w	178	2715
Bramblett 3, se nw se 17-4s-14w	288	2884
Penn-Illinois, Pyle 2, e½ ne ne 12-6s-8e	35	3204
Wickwire, Martin 1, cw½ nw sw 7-6s-9e	*	2882
Cherry & Kidd, Gray 2, se ne nw 17-4s-14w	105	2722
Gray 4, se ne ne ne 17-4s-14w	150	2854
Gray 5, sw ne ne 7-4s-14w	140	2716

[*Continued on next page*]

Summary of Drilling Operations in the United States, Week Ended December 7, 1940

	WELLS COMPLETED							*PERMITS FOR NEW WELLS				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Year Total 1939
Alabama	.....	.....	.....	.....	.....	9	2	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Arkansas	6	3	.....	3	950	176	217	1	1	141	217	223
California	18	16	.....	2	14,453	1,052	1,040	22	22	1,051	1,150	1,174
Colorado	1	.....	1	.....	.....	10	19	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Illinois*	76	47	.....	29	9,539	3,769	3,690	111	111	4,339	701	893
Indiana	13	5	3	5	579	500	279	.....	.....	.....	.....	.....
Iowa	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Kansas	25	19	1	5	25,203	1,889	1,389	39	39	1,943	1,497	1,583
Kentucky	8	3	.....	5	110	350	627	.....	.....	.....	.....	.....
Louisiana	31	23	1	7	4,424	1,615	1,105	58	58	1,602	1,360	1,449
Michigan	21	6	.....	15	770	1,145	1,420	22	22	1,061	1,374	1,419
Mississippi	3	1	.....	2	810	180	16	.....	.....	.....	.....	.....
Missouri	.....	.....	.....	.....	.....	30	.....	.....	.....	25	.....	.....
Montana	5	5	.....	.....	604	188	144	.....	.....	.....	.....	.....
Nebraska	5	1	.....	4	314	43	1	3	3	64	.....	.....
New Mexico*	6	5	1	.....	533	599	631	3	3	536	264	293
New York†	16	16	.....	.....	35	928	624	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	26	8	10	8	276	1,044	958	.....	.....	.....	.....	.....
Oklahoma	39	21	5	13	6,539	2,018	1,985	35	35	1,780	1,977	2,059
Pennsylvania†	25	15	7	3	50	3,184	1,485	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	11	4	.....	.....	.....	.....	.....
Texas	177	131	14	32	74,276	9,315	9,072	111	111	10,459	9,757	10,269
Utah	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....
West Virginia	15	2	10	3	11	594	556	.....	.....	294‡	681	718
Wyoming	4	3	.....	1	1,708	150	146	.....	.....	1	.....	.....
Total this week	520	330	53	137	141,184	28,795	25,412	405	405	23,296‡	18,978	20,080
Total last week	499	335	73	91	121,743	28,275	24,807	558	1,751	22,891‡	18,413	20,080
Total this year	28,796	20,599	1,870	6,327	9,850,284	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939.
† Includes water-input wells.
‡ Total for West Virginia covers only first 6 months.

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Superior, Ford 4, ne se se 27-4s-14w.	•	2949
Ford 5, nw sw se 27-4s-14w	700	2955
Ford 6, se ne sw 27-4s-14w	255	2922
Given 5, sw sw nw 34-4s-14w	105	2910
Greathouse 2, ne sw ne 4-5s-14w	178	2920
Greathouse 4, ne nw ne 4-5s-14w	100	2903
Woodford County—		
Morton O&G, Rocke 1, nw sw sw ne 18-2n-1e	•	1770

Indiana

Dearborn County—		
Southeastern Ind. O&G, Hunefeld 2, sw ne nw nw 15-5n-1w	•	800
Decatur County—		
Westport Nat. Gas, Billin 1, nwc sw 8-8n-9e	¶0.05	884
Hoosier Public Utilities, Schoettmer 217, c se ne 14-9n-9e	¶0.16	925
Gibson County—		
Cherry & Kidd, Hall et al 1, sw nw sw 31-2s-12w	•	2802
Knox County—		
Bell Bros., Stangle 1, c w½ nw ne 32-2n-11w	•	1921
Posey County—		
Tide Water, Doll 2, sw se sw se 33-3s-14w	130	2790
W. C. McBride, Swonders 1, se nw nw ne 4-4s-14w	366	2623
Swonders 7, se sw ne 4-4s-14w	75	2629
Swonders 8, ne ne ne 4-4s-14w	sw dis	2982
Spencer County—		
Troy Ref., Anderson 5, se nw se ne 11-6s-4w	8	702
W. W. Damron, Kinkaid 1, ne c se sw 19-7s-6w	•	925
J. C. Ellis, Fisher 1, sw ne 29-7s-6w	•	1643
H. M. Hunt et al, Lusk 1, c nw ne 5-8s-6w	¶0.81	639

Kansas

Barton County—		
Derby, Bernsdorff-Janke 2, se nw ne 33-16-11w	3000	3339
Cowley County—		
Shell, O'Neil 1, nec 27-32-3e	•	3476
Hawkeye, Moon 3, ne nw nw 21-32-5e	1152	3065
Ellis County—		
Wentworth, Richmond 1, c s½ se sw 10-11-17w	•	3425
Phillips, Sites 6, se sw nw sw 12-11-18w	3000	3357
Shell, Riddler "A" 3, se nw nw 12-11-18w	3000	3428
Ellsworth County—		
Aylward, Boye 2, c e½ nw sw 9-16-10w	141	3343
Lario, Mehl 7, c w½ ne se 35-16-10w	2437	3309
Lauck-Moncrief, Ehler 6, cwl sw se nw 35-16-10w	3000	3287
McPherson County—		
Westgate-Greenland, Zietlow 2, c w½ sw ne 19-17-1w	2131	2670
Norton County—		
Steele, Becker 1, c sw nw 25-4-12w.	•	1234
Phillips County—		
Cities Service, Johnson "B" 1, nec sw 32-5-20w	2013	3565
Reno County—		
Bay, Monford 1, c s½ se sw 12-23-4w (otd 3383)	37	3408
Houston et al, Mount 3, nw sw ne 20-24-4w (otd 3385)	sw dis	4599
Rice County—		
Bartlett et al, Biberle 1, c s½ se sw 22-18-10w	168	3223
Cities Service, Hilt 1, c se 15-19-8w	•	3325
Shell, Reese "C" 1, nwc 16-19-9w	•	1707
Central Petroleum, Snyder 1, c s½ ne se 12-20-6w	554	3368
Mitchell, Wiggins 1, c sw ne 11-20-8w (otd 3225)	¶2.5	3243
Russell County—		
Skelly, Carter 1, c n½ se nw 33-14-13w (otd 2878)	24	2953
Cities Service, Rogg "D" 1, c s½ sw ne 9-15-13w	2408	3317
Eichman "B" 2, c s½ sw sw 26-15-14w	988	3366
Stafford County—		
Skelly, McNickle 4, c n½ nw se 2-24-11w	1104	3738
Woodson County—		
Barbara, Shaffer 9, nw sw se 31-23-14e (otd 1581)	40	1755
Kilby et al, Shaffer 7, c s½ se sw 31-23-14e	6	1595

Kentucky

Daviess County—		
Master Oil, Richmond 10	100	1189
C. T. Johnson, Trs., Ingleheart 1	•	1352
J. C. Miller, Trs., Nalley 5	•	1786
Hancock County—		
S. Zanetis & P. Bendox, Moserve 1	•	955
Hopkins County—		
H. L. Scott et al, Schwab	•	940
Ohio County—		
Globe O&G, Keith 5	5	554
Sohio Oil, Bendell 17	5	351
J. C. Miller, Mason 1	•	397

North Louisiana

Caddo Parish (Pine Island)—		
Renwick & Wickizer, Stiles 2, 17-21n-16w	75	1012
J. W. Bailey, Muslow 1, 32-21n-15w	50	1537
A. R. Hanock, Louark Fee 12, 18-21n-15w	10	1042
Texas Co., Heilperin Fee 27, 28-21n-15w	50	1500
Lydia Johnson, Lavine-Murray 1, 12-20n-16w	15	1538
Louisiana Oil Prod. Co., Muslow D-6, 5-20n-15w	40	1507
Franklin Parish (Wildcat)—		
H. L. Hunt, Chicago Mill & Lbr. Co. 3, 35-14n-9e	•	5413
Grant Parish (Wildcat)—		
Gholson & Hodge, Eberlee 1, 16-7n-1e	•	4017
La Salle Parish (Wildcat)—		
Delta Dr. Co., Hughes 1, 22-8n-1e	•	4002
La Salle Parish (Oil a)—		
Arkansas Fuel Oil, Hopkins Unit 1-B, 12-10n-2e	100	2350
Placid Oil Co., Cent. Lbr. Co. 56, 35-10n-2e	225	2403
Cent. Lbr. Co. 67, 36-10n-2e	80	2454
Cent. Lbr. Co. 75, 24-10n-2e	125	2413
Cent. Lbr. Co. 71, 30-10n-3e	220	2378
Cent. Lbr. Co. 60, 2-9n-2e	112	2436
Cent. Lbr. Co. 61, 2-9n-2e	145	2427
Morehouse Parish (Monroe)—		
Hope Prod. Co., Bentley 1, 2-21n-5e	•	2331
Union Parish (Monroe)—		
Nemours Corp., Edwards 1, 36-22n-3e	¶2.0	2193
Webster Parish (Cotton Valley)—		
Hunt Oil Co., Crawford, Jenkins & Booth 2, 30-21n-10w	310	8587

South Louisiana

Barataria—		
California, Fleming 1, Unit A-7	275	8310
Bayou Blue—		
Superior, Schwing 6	199	6448
Bayou Bouillon—		
Superior, Rycade 4	•	3318
Charenton—		
Pan American, Laws Realty 15	•	10,222
Gibson—		
Shell, Pelican 10	321	9513
Golden Meadows—		
Texas, LaTerre 8	650	7950
Tippett, Doucet 8	142	5205
New Iberia—		
Helis, Bolivar 13	45	3682
Bullock A-3	466	6256
Texas, Smith 3	243	7195
Quarantine Bay—		
Gulf, State QQ 20	526	10,536
Acadia Parish—		
H. M. Naylor, Medlinka 1, West Mermentau	•	7521

Michigan

Allegan County—		
Talbot Oil Co., Miller 1, nw ne nw 18-4n-12w	•	1100
H. C. Nelson, Kroeze 4, se sw sw 9-4n-14w	180	1510
Gordon Oil Co., Koopman 6, nw ne nw 16-4n-14w	250	1511
Koopman 7, sw ne nw 16-4n-14w	100	1513
Kent Dr. Co., Smith A 1, nw sw ne 15-4n-13w	•	1640
Lillie & Johnson, Kipen 1, nw se nw 23-4n-13w	•	1604
Regal Dutch Pet. Co., Ritz 1, se se sw 10-4n-13w	90	1582
Gentry Eng. Co., O'Dell 1, se se sw 20-1n-13w	•	1386
Clare County—		
Pure, Payne 1, c n nw se 35-20n-6w	•	3827
Huron County—		
C. W. Teater, McDonald 1, se nw ne 20-17n-14e	•	1426
Fortney Oil Co., Sommers 1, nw nw nw 21-17n-14e	•	197
Ingram County—		
Kalavan Drillers, Inc., Schubel 1, se nw se 23-4n-1w	•	2758
Kent County—		
Miller & Fothergill, Parker 1, ne ne nw 15-10n-10w	•	2713
Ide O&G Co., Burgess 3, sw sw ne 32-7n-12w	•	2610
Temple & Liniger, Patterson 1, sw nw se 15-6n-12w	•	1970
McClanahan, Smith 1, se sw ne 16-5n-12w	•	1807
Monroe County—		
George Kernodle, Bragg 1, ne nw sw 30-6s-6e	30	2145
Montcalm County—		
Belvidere Oil Co., Hansen 1, c se 28-12n-6w	•	1311
Ottawa County—		
Coon & Dooley, Postumus 1, ne nw ne 16-7n-13w	•	1991
Fisher-McCall, Inc., Masterson 2, ne ne se 23-7n-13w	120	1887
Van Buren County—		
Smith Pet. Co., Edwards 1, se nw ne 27-1s-16w	•	1082

Mississippi

Attala County (Wildcat)—		
Gulf, Peeler, 35-15n-9e	•	5010
Yazoo County (Wildcat)—		
Joe Dawson, Wilson 1, 30-12n-3e	•	5016
Yazoo County (Tinsley Dome)—		
Union Prod. Co., Robinette 5, 19-10n-2w	810	4965

Montana

Glacier County (Cut Bank)—		
Glacier Prod. Co., Fuller 4, nw ne se 17-34n-5w	190	2959
Rigney 3, csw ne 2-35n-6w	10	3054
Texas Co., M455-State 7, cse nw 16-32n-5w	368	2975
112-Tribal 11, cwl ne ne 6-32n-5w	220	2884
Toole County (Kevin-Sunburst)—		
Patterson Oil Co., Government 2, se se se 15-35n-3w	16	1833

Nebraska

Nemaha County—		
Pulliam et al, Lawrence 1, sec 34-5n-15e	•	2518
Pawnee County—		
Black Gold, Bernadt 1, c nw ne 31-3n-11e	•	736
Palanski et al, Dolhke 1, c ne ne 14-3n-12e	•	733
Richardson County—		
McAlpine et al, Tieken 1, c s½ se sw 3-1n-15e	•	10
Midland, Towle 1, c nw nw 29-1n-16e	314	2362

New Mexico

Eddy County—		
Brewer Dr. Co.-M. Yates, Jr., Williams 1, nw ne nw 25-18s-26e	96	1041
Sam Sanders et al, Berry 7, se nw ne 24-17s-27e	20	529
Neil Wills et al, Keyes 2, c sw ne 15-20s-30e	138	1661
J. O. Wood et al, Root 1, c ne nw 12-17s-29e	264	2590
Lea County (Wildcat)—		
Great Western Prod., State 1-D, se se 30-12s-32e (pb to 3048)	15	4385
San Juan County—		
Southern Union Prod. Co., Reid 1, nw sw se 13-29n-12w	¶0.4	1758

New York

ALLEGANY COUNTY

Lester Young, Vincent farm, Scio	3	1270
Messer Oil Corp., Koehler farm, Clarksville	2	1438
Putnam Oil Co., Cartright farm, Bolivar	6	1429
Bradley Prod. Corp., Lewis farm, Alma	4	1446
Albert Oil Co., Easton farm, Alma	7	1383
Dick Oil Co., Cameron farm, Bolivar	4	1414
Cameron farm, Bolivar	4	1432
Fulmer Oil Co., Jordan farm, Independence	5	1274
Water Intake Wells—		
Messer Oil Co., Shaner farm, Bolivar	...	1472
Boyd Oil Co., Drumb farm, Wirt	...	1276
Bradley Prod. Corp., Duke farm, Alma	...	1483
Marsh Oil Co., Fay farm, Bolivar	...	1425
Andover Oil Co., Livermore farm, Andover	...	•
H. W. Patterson, Fuller farm, Amity	...	889
P. H. Fuller Est., Fuller farm, Amity	...	861
H. W. Patterson, Fuller farm, Amity	...	876

Ohio

Ashland County—		
Lyons & Stewart, Chandler 1	¶0.5	3095
Athens County—		
Gibson et al, Van Dyke 9	30	436
Gifford et al, Parmiter 4	2	425
Gallia County—		
Cody, Rothgeb 1	¶0.1	1797
Guernsey County—		
Roy Earley et al, Roe 1	2	1335
Osborne et al, Eschbaugh 1	•	1410
Holmes County—		
Ohio Fuel Gas, Finney 2	¶0.28	3398

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Knox County—		
Perkins, Wooridge 1	•	2585
Upham, Belt 1	•	2678
Licking County—		
Davidson et al, Day 1	¶0.66	2325
C. A. Davis, Weakley 1	¶0.22	2626
Lacknett et al, Wenzel 1	¶ 0.2	2528
Everett Co., Mound Mortgage & Loan 1	¶ 0.4	2300
Ohio Fuel, Long 2	•	2440
Heil 1	•	2391
Lorain County—		
Ohio Fuel, Shuster 1	•	2632
Medina County—		
R. C. Holmes et al, Carleton 1	50	662
Adair, Wilbur 1	5	407
Monroe County—		
H. B. Walker Co., Miller 1	¶0.87	2161
Muskingum County—		
Gas Prod. Co., Campbell 1	35	4267
Noble County—		
King, Shockling 1	•	405
Perry County—		
Palm Oil, Lyons 2	150	3319
Stark County—		
Lyons et al, Barber 2	2	4845
East Ohio Gas, Becher 3	¶2.8	4223
Washington County—		
H. W. Winland et al, Winland 5	¶0.06	1860
Whippoorwill Co., Schnider Hrs. 1	•	2000

Oklahoma

Caddo County—		
Magnolia, Hedlund 7, sw se nw ne 11-5n-9w (otd 3945)	¶57	5090
Ohio, Rigney 6, c w½ se se 12-5n-9w	1938	3388
Carter County—		
Batson, Williams 7, cwl nw ne se 20-4s-2w	130	2096
Gibson et al, Mertens 5, cwl sw nw se 20-4s-2w	98	1965
Porterfield, Walker-Voorhees 1, ne nwc ne 20-4s-2w	175	2154
Comanche County—		
Wynn, Foutz 1, nw nw ne sw 7-1n-10w	2	310
Maloney, Smith 1, se ne se 23-2n-11w	•	140
Smith, Williams 3, se sec nw 26-2n-11w	5	226
Cotton County—		
Madden et al, Emery 1, ne nec 30-3s-13w (otd 2503)	•	3689
Creek County—		
Martin et al, Harrison 1, se ne ne 8-14n-10e (pb 3169)	37	3173
Williams, Ralston 1-A, sw nw nw 6-16n-10e	•	2375
Adamson, Cosar 1-A, swc se 10-18n-10e	•	2520
Jackson, Martin 3, sw sw se ne 18-18n-10e	30	2059
Jackson County—		
Bale et al, Illinois Banker 1, nwc se 24-1n-20w	•	2878
Hughes County—		
Loual, Harrod 1-A, nw nw ne ne 7-8n-9e	¶12.5	3336
Kay County—		
Williams, Trueblood 1, c se se 25-25n-1w	•	1046
Kiowa County—		
Argo, Ratliff 1, se ne ne 19-7n-17w	2336	1055
Le Flore County—		
LeFlore G. & E. Co., Lester RO-37, c sw 5-6n-23e	•	3225
Lincoln County—		
Berkey, Gragg 2, ne se se 32-12n-6e	320	3299
Magnolia, Ross 8, ne sw se 2-14n-3e (pb 4000)	32	4219
Logan County—		
Amerada-Stanolind, Fouts 3, nec 14-17n-1w (otd 5140)	37	3895
W. Virginia, Pfeiffer 1 c s½ nw se 33-20n-2w (otd 5137)	31	4180
Okfuskee County—		
Shell, Curry 2, se sw nw 35-12n-8e	834	3607
Portable, Walker 1, sw nw sw 17-13n-7e	•	3188
Oklahoma County—		
Phillips, Heights 1, sw nw sw nw 26-12n-3w (otd 6375)	¶7.5	6203
Okmulgee County—		
Tatro, Fee 1, ne se ne nw 24-15n-12e	10	1580
Osage County—		
Barnsdall, Water Flood 1, se nw sw ne 30-21n-9e	Input	342
Pawnee County—		
Metten, Woods 1-A, c s½ ne ne 9-20n-6e	¶0.05	362
Platter, Burch 3, ne nw sw sw 4-20n-9e (otd 2760)	¶0.18	698
Payne County—		
Magnolia, Cain 4, c e½ ne sw 12-17n-1e (otd 4951)	340	4640
Berry et al, Johnston 1, ne sw se 17-17n-6e	•	2983
Pontotoc County—		
Bray, Neal 1, se sw nw 25-5n-4e	108	2588
Scroggins, Gordon 1-A, sw ne ne 34-5n-7e	11	1127
Seminole County—		
Mid-Continent, Harjoge 6, ne ne se se 31-7n-8e	•	3260
Mid-West, Maud 1, se nw se 27-8n-5e	•	4470
Stanolind, Grisso "B" 1, nw ne sw 15-9n-6e	60	2937
Stephens County—		
Sun, Boring 1, ne sw nw 9-1s-4w	•	6310
Tulsa County—		
Sauter, Coonhead 2-A, se nw ne 12-17n-12e	5	1337
Wagoner County—		
Bailey, Thompson 2, sw sw nw ne 22-19n-15e	•	947

Pennsylvania

BRADFORD DISTRICT

D. E. Quinlan Est., Fee	2	....
Messer Oil Corp., Loop	5	....
Bel Oil Co., Fee	5	....
D. W. Daly, Bing 369	1	....
Curtis Oil Co., No. 2, Bordin	1	....
Bradford Tt. Co., 27 wells	27	....
Forest Oil Corp.	1	....
Niagara Oil Corp., 3 wells	3	....
Water Intake Wells—		
Andrus & McDowell, Bing 326	...	....
Forest Oil Corp., 2 wells	...	....
Forest Pet. Corp., 3 wells	...	....
Niagara Oil Corp., 4 wells	...	....

NEW YORK-PENN GAS FIELD

Cunningham Nat. Gas, Fortner 2	•	....

MIDDLE DISTRICT

Dempseytown Gas Co., Shriber	1	....
S. R. Lewis et al, Lechner	•	....
Peoples Nat. Bank, Hoffman	1	....

BUTLER-ARMSTRONG DISTRICT

D. L. Baird, Hoover	2	....

SOUTHWEST DISTRICT

Armstrong County—		
Equitable Gas, Shoemaker 1	¶0.08	3653
Fayette County—		
Eberly et al, Huhn 1	¶0.45	2239
Greene County—		
Peoples Nat. Gas, Rinehart 1	¶0.3	3487
Waynesboro Home Gas, Morris 1	¶0.12	3085
Washington County—		
E. H. Tague, McKenna Est. 17	2	892
H. V. Sprowls et al, Vankirk 2	¶0.10	1392
Geo. Gray et al, Long 1	•	2990
Westmoreland County—		
Hyde Park Foundry, Grinder 2	¶0.07	3100

East Texas

Kilgore Area—		
B. F. Carroll et al, Barker 3	350	3567
Delta Dr. Co., Barber 5 (5-ac)	1200	3500
Sinclair Prairie, King 26-B, Tr. 5 (147-ac)	2000	3492
L. L. Sugar et al, Knowles 2	500	3600
Longview Area—		
Coastal Dev. Co., Wood 8 (100-ac)	1200	3533
Petroleum Co., Colburn 17 (36.86-ac)	4200	3597
Franklin County (Talco)—		
Magnolia, Rutherford 1 (60-ac)	520	4278
Titus County (Talco)—		
Humble, McPeters 1-S (water disposal)	•	1171
Cass County (Wildcat)—		
J. S. Pate, W. D. Chew 1, Joseph Cole sur	•	3480

West Texas

Andrews County (Means)—		
Humble, Means	238	4535
Cochran County (Wildcat)—		
Moore & Olson, Halff 1-C	•	1502
Crane County (Waddell)—		
Gulf, Waddell 34	72	3548
Ector County (Johnson)—		
Delaney, Johnson 2-C	870	4140
I. T. I. O., Johnson 2-A	404	4215
Johnson 4-B	1294	4150
Sunray, Johnson 2-J	1025	4182
Ector County (N. Cowden)—		
Cities Service, Rhodes 9	1689	4196
Ector County (Penwell)—		
Cosden, Kloh 5	526	3730
Ector County (Goldsmith)—		
Gulf, Goldsmith 320	473	4243
Goldsmith 311	495	4174
Goldsmith 323	1166	4225
Gaines County (Seminole)—		
Amerada, Mann 4	672	5205
Matthews A-1	513	5376
Magnolia & Atlantic, H&J 5-195	422	5197
Ohio, Gibbs 4	563	5308
Hockley County (Slaughter)—		
Bond, Harrison & Awoeb, Mid-Seale 1-B	585	5020
S. Richardson, Slaughter 7	1071	5000
Stanolind, Slaughter 17-B	1085	5060
Pecos County (Lehn)—		
Pattillo, Sullivan 15-B	81	1703
Pecos County (Masterson)—		
Childress Roy, Humble-Shearer 3-A	22	1500
Olson & McCandless, Crockett 1	1180	4518
Andrews County (Emma)—		
Adams & Bradley, University 4	1384	4305
Cochran County (Duggan)—		
Magnolia, Mallet 3-A	798	4990
Osage Dr. Co., Moore-Devonian 1-D	410	5057
Crane County (Gulf-McElroy)—		
Gulf, McElroy 231	857	2962
Crane County (Gulf-Waddell)—		
Gulf, Henderson 24	5311	3550
Waddell 34	72	3548
Crane County (McCamey)—		
Texas Co., King 47	•	2750
Crockett County (Wildcat)—		
Wahlenmaier-Currie-Bosworth, Bean 1	†	670
Ector County (Foster)—		
Broderick & Calvert, Bagley 4	966	4325
Rhodes-Tompkins-Great Western Producers, Maurice 2	449	4246
Ector County (Goldsmith)—		
Gulf, Goldsmith 320	473	4243
Goldsmith 321	1099	4174
Goldsmith 323	1166	4225
Goldsmith 324	1364	4230
Goldsmith 325	594	4224
Ector County (Jordan)—		
Texas Co., McDonald 5	1617	3700
Ector County (North Cowden)—		
Richmond Dr. Co.-Collins, Smith 1	1986	4195
T. P. Coal & Oil Co., Smith 3	•	4214
Tide Water, T. P. Land Trust 3-A	703	4190
Trinity Dr. Co., T. P. Land Trust-Conoco 1	•	4194
Gaines County (Cedar Lake)—		
Stanolind, Riley 1-B	48	4737
Gaines County (Seminole)—		
Amerada Pet. Corp., Matthews 1-A	513	5376
Mann 5	826	5230
Mann 6	722	5245
Magnolia & Atlantic, H. & J. 5-251	714	5316
H. & J. 6-251	659	5307
Gaines County (Wasson)—		
Amon Carter & Conoco, Willard 1-A	762	5030
Hockley County (Slaughter)—		
Awoeb Oil Co.-Bond Oil Corp., Barry 1	381	5017
Mid-Seale 1-A	432	5008
Magnolia, Mallet 1-F	529	5013
Mallet 1-J	761	5045
Mallet 2-G	600	5035
Mallet 3-G	616	5011
Hockley County (Wildcat)—		
Cascade Pet. Co., Walker-Honolulu 1	•	5100
Scurry County (Sharon)—		
D. & R. Oil Co., Burney 6	162	2430
Upton County (Gulf-McElroy)—		
Gulf, McElroy 229	3504	2860
Upton County (McCamey)—		
Shell, Bowen 46	151	2340
Upton County (Wildcat)—		
Starnes & Yates (was B. C. D. Dev. Co.), Owens 1	60	2827
Ward County—		
Brandor Pet. Co., Brandenburg 4	58	2144
Gulf, O'Brien 153	257	2775
Magnolia, Sealy 2-41 (gas blowout)	†	2880
Westexas Oil & Roy. Corp., University 7-C	2494	2695
Winkler County (Halley)—		
Gulf, O'Brien 147	259	2874
Winkler County (Keystone)—		
Ralph Lowe et al, Campbell-Texaco 5	401	3285
Sid Richardson et al, Jenkins-Sun 2	152	3459
Yoakum County (Wasson)—		
Aloco Oil Co., Miller-Texaco 13-A	514	5175
Basin States Oil Co., Fisher-Walker 3	966	5217
Denver Prod. & Ref. Co., Whittenburg 21	1115	5130
Humble, Bennett 10	553	5250
Magnolia, Mahoney 22	931	5178
Sinclair Prairie, Kendrick 2-B	368	5132
T. P. Coal & Oil Co., Hearne 5	492	5250
Yoakum County (Wildcat)—		
Forest Dev. Corp., Whisenant-Shell 1	•	5515

West Central Texas

Brown County—		
Hogan & Stewart, Perry 2	10	913
Callahan County—		
H. T. Wagley et al, Williams 1	•	750
Coleman County—		
Coleman O&G Co., Davis 1	¶1.25	2306
States Oil Corp., Morris 6	333	3594
Jones County—		
J. F. West-Ungren-Frazier, Carlton 1	•	3246
Shackelford County (Wildcat)—		
Roeser-Pendleton & Conoco, Cook 1-A-141	•	1794
Shackelford County—		
J. L. Hart et al, Sanders 7	•	585
Hickok P&D Co.-Harry Reynolds, Morris 1-A	¶2.0	1480
C. J. Kleiber et al, Morris 2-C	20	1508

United States Well Completions—*Continued*

South Texas

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Hidalgo County (Samfordyce)—		
John Messenger et al, Victorino Garza Chapa 1	500	3418
Phillips, Villarreal (Thomas Flores) 2	450	4194
Jackson County (Lolita)—		
Humble, L. Ranch Co. 6-A	1200	5931
Wellington Oil Co. of Del., L. Ranch Co., 1-A	750	7282
Jackson County (West Ranch)—		
Magnolia, West 39-A, (owdd fr 5135 ft)	900	5532
W. R. R. Oil Co., Texas 5	1000	5550
Jim Wells County (Orange Grove)—		
Atlantic Ref., Blashke 2-B	500	5091
Jim Wells County (Wade City)—		
Arkansas Fuel Oil Co., Nollkamper 3	275	4926
T. H. McElvain, Blashke 4	500	4316
Live Oak County (White Creek)—		
Roy Clark, Adams 1	396	5544
Nueces County (Agua Dulce)—		
Texon Royalty Co., Walton 1	500	7035
Nueces County (Bentonville-King)—		
Southern Minerals Corp., King 5 (owdd fr 4022 ft)	400	5620
Nueces County (East White Point)—		
W. R. R. Oil Co., Texas 5-973	500	5863
Nueces County (Clara Driscoll)—		
Wellington Oil Co. & Pan American, Driscoll 2-B	300	5304
Nueces County (South Clara Driscoll)—		
Texas Co., Flinn 4	¶2.0 & 100	5015
Nueces County (East Flour Bluff)—		
Humble, Flour Bluff-State 1-F	51	6809
Nueces County (Stratton)—		
Southern Minerals Corp., Bertram et al 5	650	6642
Victoria County (Coletto Creek)—		
Glenn H. McCarthy, Dietzel 1	¶2.5	5403

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County (Cedro Hill)—		
Magnolia, D.C.R.C. 17 (132)	¶5.0	1454
D.C.R.C. 8 (190)	*	1425
Duval County (Longhorn)—		
Hiawatha O. & G., Denman 7	*	4960
Duval County (Lundell)—		
Magnolia, D.C.R.C. 2 (260)	*	1704
M. L. Massingill et al, D.C.R.C. 9	41	1494
Duval County (West Casa Blanca)—		
Magnolia, D.C.R.C. 5 (289-85)	50	1453
D.C.R.C. 8 (289-85)	*	1341
Duval County (Wildcats)—		
Cartter & Rubsamen, Driscoll 1, Sur 62	*	2980
Pocono Dev. Co., Adami 1, Sur 349	*	1355
Jim Hogg County (Colorado)—		
Humble, King Ranch-Colorado 3-B	300	2998
King Ranch-Colorado 24	250	3037
V. G. Neuhaus, Martinez (Trevino) 4-B	600	2992
Sun, Thaxton 14	300	2962
Jim Hogg County (Kelsey)—		
Humble, Bass 20	*	4800
Jim Hogg County (Wildcat)—		
Jay Simmons & V. G. Schimmel, Gutierrez 1, sur 144	*	2740
McMullen County (Calliham)—		
Marion Prod. Co., Lark 8-A	10	1032
Starr County (Boyle)—		
Sun, Chapa de Vela 1	100	3225
Starr County (North Rincon)—		
Sun, Mateo Saenz-State 2, outpost, sur 80, new sd & extension	100	5266
Starr County (Yzaguirre)—		
W. R. Davis, Seyfriedt et al 1, outpost, sur 928, new sd & extension	¶10.0 & 50	6006
Webb County (Wildcat)—		
Smith & Story, Brodie 1, sur 1246	*	2520
Zapata County (Escobas)—		
H. & R. Oil Co., Garcia Est. 9, (owdd fr 1100 ft)	¶0.25	1244
Zapata County (Glen)—		
Jay Simmons, Yaeger-Strohman 4	149	2198
Transwestern Oil Co., Yaeger-Strohman 3	84	2185
Zapata County (Wildcats)—		
E. C. Brogan, De Montemayor 1, sur 63	*	2000
Fidelity O. & Roy. Co., Gopher Trust Est. 1, lot 13, blk 3	*	2018
Texas Co., Jennings 137, Blas Maria gr	*	1531

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Bexar County (Wildcat)—		
George H. Shelton, Gembler 2, Stafford sur	*	760
Frio County (Pearsall)—		
Texas Atlas Oil Co., McWilliams Bros. & Cory 5	400	5506
Guadalupe County (Elm Creek)—		
Elm Creek Prod. Co., Schraffl 4	10	802
Medina County (Wildcat)—		
Wilbur D. Bacon, Tr, Wurzbach 1, sur 37½	*	450
Williamson County (Wildcat)—		
H. G. Dickinson, Adamek 2, BBB&C sur	*	1405

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Clayton-Dwyer Dr. Co., Schafer-Texaco 1	336	3129
Magnolia, Fee (Tr. 244) 92	462	3155
Gray County—		
Adams & McGaha, Morse 2	141	2695
Bell O&G Co., Morse 11-B	75	2429
Magnolia, Fee (Tr. 227) 36	101	2971
Fee (Tr. 227) 38	104	2934
Texas Co., Barrett 11	227	3300
Hansford County (Wildcat)—		
I. T. I. O. Co., O'Laughlin 1	*	3249
Hutchinson County—		
Fraber-Hodges Corp., Ware 5	171	3046
Ware 6	299	3108

Texas Gulf Coast

Company, Well and Location	Init. Prod. Bbls.	Depth
Alta Loma—		
Stanolind, Hulen 1	276	9166
Clear Lake—		
Humble, West Fee 58-C	145	5905
Dyersdale—		
H. C. Cockburn, Burkitt 4	366	4098
Burkitt 5	416	4093
Burkitt 10	414	4090
Lovell's Lake—		
Humble, Jeff. Ld. Co. 17	182	7785
Fairbanks—		
Stanolind, Jahnke 10	71	6850
Manvel—		
Texas, HOFA 36	505	5685
Markham—		
Thomar, Sisk 2	145	3267
Joes Lake—		
Republic, Hurd 47	408	7705
Old Ocean—		
Stanolind, Love 1	423	10,885
Rowan—		
Humble, Hubbard 2	168	8541
Sandy Point—		
Coastal, Ransom 1	*	6610
Tomball—		
Humble, Weindorff 1	335	5574
Jefferson County—		
Hall-Jordan, State 1-72, Sabine Pass	*	7600

North Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
Helmerich & Payne, Moss 3	72	4020
Bert Ligon et al, White 2-C	384	3912
R. C. Lipscomb et al, Wilson-McCrory 6	636	3839
Archer County—		
F. T. Johnson et al, Brown 5	4	1402
Archer County (Wildcat)—		
Home Oil Co., Meade 2	73	966
Clay County—		
Johnson-Kouri-Morgan, Taylor 3-39	10	1130
Clay County (Wildcats)—		
N. H. Martin & Son, Brannan 1	*	1836
T. A. Norwood et al, McGregor 1	*	1351
Clay County (Hapgood)—		
Phillips Pet. Hapgood 1	*	6250
Clay County (Shell-Henderson)—		
Shell Oil, Coburn 2	1515	3290
Cooke County—		
C. J. Bohner et al, Fette 2	6	1066
Harvey Dr. Co., B. Voth 1	*	1377
S. H. Walton et al, M. Kessler 1	9	1400
J. B. Wilds et al, Hess 1	*	1467
Cooke County (Walnut Bend)—		
Sun Oil, Snuggs 8	192	4919
Montague County (Bonita)—		
Sinclair Prairie, Admire 2	1984	5248
Throckmorton County—		
A. L. Watson et al, O'Dell 4	¶	575
O'Dell 5	5	367
Wichita County (Asylum)—		
Pet. Producers Co.-Conoco, Bullington 1	346	4756
Wichita County (K-M-A)—		
Deep Oil Dev. Co.-Conoco, Strauss 1	930	3893
C. O. Doss et al, Perkins 1	93	3975
Hammon, Hanlon & Buchanan, Fassett-Tuttle 34	576	3965
Wichita County—		
J. E. Farrell et al, Waggoner Bros. 49-D	9	800
Wilbarger County (Consolidated)—		
W. T. Waggoner Estate, Fee 5-GG	624	4014
Wilbarger County (Wildcat)—		
O. M. Stidham & Son, Watts 1	*	4630
Young County—		
C. H. Bohner Oil Corp., Prideaux 4-A	*	548
L. T. Burns et al, Larrimore 2	15	882
E. W. Hunt et al, Gass 11	6	1225
Chas. B. King et al, Brown 1	9	558
N. H. Martin & Son, Hamilton 12-A	10	950
Young County (Wildcats)—		
Dale Dublin et al, Edwards 1	*	955
B. C. Gilmore et al, McDavid 1	*	645

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Boone County—		
Pond Fork, Fee 17	¶1.25	4290
Hope Nat. Gas, Hopkins 8508	¶0.14	2951
Braxton County—		
R. L. McCultey et al, Gerwig 3	10	1860
Cameron Oil & Gas, Fulks 1	*	1950
Cabel County—		
W. Va. Gas Corp., Locke 1	*	3887
Clay County—		
Pitts. & W. Va. Gas, Duffield 7758	*	2193
Gilmer County—		
A. E. Ellis et al, Lockhart 3	¶0.03	2310
Kanawha County—		
D. H. Stephenson et al, Baldwin 1	¶1.25	5250
United Carbon, Wines 1	¶0.95	5080
Lewis County—		
Hope Nat. Gas, Griggs 8525	¶0.11	1924
Lincoln County—		
Kanawha Gas & Utilities, Stowers et al 1	¶0.23	3650
Reishman Bros., Nelson 2	¶0.06	4307
Putnam County—		
Liberty, Ross 1	¶0.26	1897
Ritchie County—		
R. W. Richards et al, Fee 2	1	1680
Richards & Moats, Stout & Jackson 5	¶0.31	1710

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Lincoln County (LaBarge)—		
Klumpe Syndicate, Government 4-A, se se se 4-26n-113w	*	1400
Natrona County (Cole Creek)—		
General Pet. Corp., 16-State-57, c nw sw se 16-35n-77w	160	4570
Niobrara County (Lance Creek)—		
Argo Oil Corp., Elliott 3, c ne ne 6-35n-65w	1440	5316
Park County (Frannie Field)—		
Continental Oil, Northern Pacific RR 4, se ne se 23-58n-98w	108	3150

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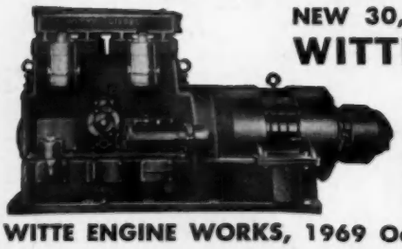

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Cowan Hearing

At a hearing scheduled for December 16 at Austin, the Texas Railroad Commission will determine whether or not special rules should be adopted for the area, surrounding British American Oil Producing Company's Claud Cowan 1, Section 198, T&NO RR Survey, Baylor County.

WILDCAT REPORT
New Starts and Completions

ARKANSAS

COMPLETION

Clark County—Coker & Grieves, Sullivan 1, sw ne ne 2-11-20, abnd 619 ft.

CALIFORNIA

FIRST REPORTS

Kern County—Texas Co.'s Theta 2-28 sec 2-26-20, rig, Lost Hill area.

Los Angeles County—Western Gulf Oil Co.'s Lechler 1, sec 31-5-17, lcn, Castaic area.

San Bernardino County—Homer May's Oasis 1, sec 31-2-8, rig, Carbon Canyon area.

Ventura County—Oilexco, Inc.'s Stevens 1, sec 34-4-18, lcn, Piru area. South Mountain Oil Co.'s No. 1, sec 19-3-20, lcn, South Mountain area.

COMPLETION

Kings County—Tide Water's West Slope 31, sec 20-24-18, abnd 1970 ft in Cretaceous, Pyramid Hills area.

KANSAS

FIRST REPORTS

Greenwood County—McGinnis et al's Kellar 1, sec nw 22-16-13e, dr.

Stafford County—Zephyr Dr. Co. et al's Moon 1, c s½ se nw 30-22-13w, dr.

Woodson County—Aikman et al's Sasse 1, nw ne sw 36-23-13e, dr.

COMPLETIONS

Barton County—Shell's Homolka 1, nec se 24-16-11w, 2½ mi w Stoltenberg pool, Anhydrite 708 ft, Ft. Riley 1670 ft, Florence 1770 ft, Wreford 1845 ft, Neva, 2025 ft, Topeka 2693 ft, Lansing 3071 ft, Sooy 3365 ft, sand 3368-70 ft, Arbuckle 3441 ft, abnd 3468 ft.

Greenwood County—Creel et al's Stonebreaker 1, c w½ e½ sw 32-17-11e, 1¼ mi w Severy pool, so 1273-77 ft, hfw, abnd 1305 ft.

Rooks County—Palmer Oil Co.'s Denio 1, c e½ sw ne 17-8-16w, 4 mi se Stockton pool, Anhydrite 1132 ft, Topeka 2720 ft, Lansing 2995 ft, sso 3004-07 ft, Arbuckle 3310 ft, abnd 3337 ft.

Stafford County—Bradley Bros.' Davis 1-A, c w½ sw sw 32-23-12w, between Bedford and Stafford pools, Lansing 3475 ft, Sooy 3760 ft, Viola 3799 ft, Simpson 3905 ft, Arbuckle 3972 ft, td 3987 ft, pb 3868 ft, 1000 gal acid, 1290 ft fluid in hole, 10 percent oil, some gas, abnd 3838 ft.

Sumner County—Shawver et al's Knowlton 1, c w½ nw se 6-33-2e, 4 mi se Oxford pool, Stalnaker 2385 ft, Kansas City 2890 ft, Mississippi 3413-3720 ft, Simpson 3768 ft, Arbuckle 3826 ft, abnd 3836 ft.

NORTH LOUISIANA

FIRST REPORTS

Natchitoches Parish—S. Rhodes & J. F. O'Mara's Prudential Life Ins. 1, se ne se 36-11n-10w, mat.

Caldwell Parish—V. V. Ryan et al's Cent. Lbr. 1, ne ne 16-12n-3e, rig.

COMPLETIONS

Franklin Parish—H. L. Hunt's Chicago Mill & Lbr. Co. 3, c sw se 35-14n-9e, abnd 5413 ft.

Grant Parish—Gholson & Hodge's Eberlee 1, ne ne 16-7n-1e, abnd 4017 ft.

La Salle Parish—Delta Dr. Co.'s Hughes 1, ne ne sw 22-8n-1e, abnd 4002 ft.

MICHIGAN

FIRST REPORTS

Clare County—Sun's McIntosh 1, c s sw ne 16-19n-3w, dr.

Kalkaska County—Monarch Dev. Co.'s Antrim Iron Co. 1, c se 16-28n-7w, rig.

Ottawa County—Fisher-McCall, Inc.'s Easton 1, nw ne sw 18-7n-14w, dr.

COMPLETIONS

Allegan County—Talbot Oil Co.'s Miller 1, nw ne nw 18-4n-12w, abnd 1100 ft.

Ingham County—Kalavan Dr. Inc.'s Schubel 1, se nw se 23-4n-1w, Dundee 2649 ft, abnd 2758 ft.

Kent County—W. L. McClanahan's Smith 1, SE SW NE 16-5n-12w, Traverse 1798 ft, abnd 1807 ft. Miller & Fothergill's Parker 1, ne ne nw 15-10n-10w, Traverse 2684 ft, so 2695 ft, abnd 2713 ft.

Van Buren County—Smith Pet. Co.'s Edwards 1, se nw ne 27-1s-16w, Traverse 1074 ft, abnd 1082 ft.

MISSISSIPPI

COMPLETIONS

Attala County—Gulf's Peeler 1, ne se 35-16n-9e, elev 580 ft, chalk 1700 ft, Eutaw 2520 ft, Tuscaloosa 3060 ft, lower Cretaceous 3442 ft, electric log, abnd 5010 ft.

Yazoo County—Joe Dawson's Wilson 1, sw se 30-12n-3e, elev 244 ft, Wilcox 1328 ft, Midway 3074 ft, Selma chalk 3895 ft, Eutaw 4816 ft, Wilburn sand 4872 ft, drill-stem 4866-76 ft, 60 ft mud cut with gas and dark brown oil, 90 ft sw & oil, and 90 ft sw, abnd 5016 ft.

NEBRASKA

COMPLETIONS

Nemaha County—Ray Pulliam et al's Lawrence 1, sec 34-5n-15e, 8 mi e Auburn, Lansing 769 ft, Mississippi 2010 ft, Hunton 2506 ft, abnd 2518 ft.

Pawnee County—Black Gold's Bernadt 1, c nw ne 31-3n-11e, 30 mi nw Falls City pool, Lansing 565 ft, Granite 675 ft, abnd 735 ft. Palanski et al's Dolhke 1, c ne ne 14-3n-12e, 21 mi nw Falls City pool, Lansing 451 ft, Granite 710 ft, abnd 733 ft.

Richardson County—McAlpine et al's Tieken 1, c s½ se sw 3-1n-15e, 4 mi w Falls City pool, abnd 10 ft.

NEW MEXICO

COMPLETION

Lea County—Great Western Producers, Inc.'s State 1-D, near c se se 30-12s-32e, elev 4385 ft, anhydrite 1395 ft, salt series 1520 ft, Yates sand 2275 ft, solid lime 3678 ft, pb from 4385 to 3052 ft, pump 16 bbls oil and 9 bbls water, initial and natural.

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OKLAHOMA

FIRST REPORTS

Jefferson County—Danciger et al's Hefner 1, sec 3-4s-4w, lcn.

Lincoln County—Mid-Continent et al's School Land 1, nw ne nw 36-12n-3e, rig.

Noble County—Adams et al's Albright 1, swc se 31-23n-2w, dr.

Kay County—Gurley & Cullison et al's Casemore 1, ne se nw 15-26n-1e, spd.

Okfuskee County—Mid-Continent et al's Stokes 1, sw se sw 20-13n-8e, lcn. Keener O. & G. Co.'s McKernan 1, nwc ne 26-12n-8e, dr.

Payne County—Crosbie et al's Moore 1, nec nw 29-20n-2e, dr.

Pawnee County—Greer et al's Isaacs 1, nw sw se 25-20n-6e, lcn.

Pottawatomie County—Hilton Phillips et al's Griffenstein 1, nec nw 22-8n-2e, rig.

COMPLETIONS

Caddo County—Texas Co.'s Smith 1, c ne nw 2-5n-12w, 4 mi nw Apache, Viola 2543 ft, Dense 3713 ft, td 4396 ft in Bromide pb 2966 ft, test 2505-2966 ft, 3,000,000 ft of gas, new pool.

Cotton County—E. R. Stewart's Emery 1, c ne ne 30-3s-13w, 4 mi n Devol pool, otd 2503 ft, Canyon 3015 ft, abnd 3689 ft.

Osage County—Oklahoma Nat. Gas Co.'s Osage 1, nwc ne 29-22n-12e, 1 mi e Hominy Falls pool, Bartlesville zone 1380 ft, Bartlesville sd 1432-86 ft, Burgess 1618-37 ft, water, Mississippi 1639 ft, abnd 1686 ft.

Stephens County—G. L. Pace et al's Miller 1, nw ne nw 13-3s-5w, between Loco and Dixie pools, new pool, so 234-40 ft, sand 930-45 ft, Arbuckle 2711 ft, td 2741 ft, pb 952 ft, 12 bbls, 25-gr.

EAST TEXAS

FIRST REPORTS

Hill County—Rust and Sanders' J. H. Hutchinson 1, 100-ac lse, L. H. Williams sur, 2 mi sw Mount Calm, dr 385 ft.

Wood County—Delta Dr. Co.-Sells Pet Co.'s Beckham 1, sw part 38½-ac tr, G. W. Cowan sur, 4½ mi ne Mineola, dk.

COMPLETION

Cass County—J. S. Pate's Chew 1, Joseph Cole sur, abnd 3480 ft.

WEST TEXAS

FIRST REPORTS

Brewster County—J. B. Gordon et al's Interstate Minerals 1, c HE&WT sec 213, blk G-4, lcn.

Loving County—The Sloan-Zook Co.'s Land Trust 1, nwc ne T&P sec 37, blk 56, Tsp 1, Delaware test, sp.

Terrell County—Texas Cons. Oil Co.'s Holmes 1, nec GH&SA sec 14, blk A-2, dr 355 ft.

COMPLETIONS

Crockett County—Wahlenmaier-Currie et al's Bean 1, c sw ne GC&SF sec 48, blk UV, jkd 670 ft, skid rig 20 ft.

Hockley County—Cascade Pet. Co.'s Walker-Honolulu 1, lab 22, leag 22, McCulloch CSL sur, elev 3444 ft, anhydrite 2270 ft, Yates 2936 ft, brown lime 3992 ft, San Andreas lime 4290 ft, abnd 5100 ft.

Upton County—Starnes & Yates (was B. C. D. Dev. Co.'s) Owens 1, ne ne nw sec 91, blk Y, GC&SF-F. Rooney sur, pay 2800-22 ft, pb from water at 2827 ft for 80-qt nitro shot 2808-22 ft, pump 60 bbls oil plus 60 percent water (new pool).

Yoakum County — Forest Dev. Corp.'s Whisenant-Shell 1, c se se sec 553, elev 3565 ft, Yates sand 3330 ft, brown lime 4420 ft, solid lime 4790 ft, cas collapsed and abnd, td 5515 ft.

NORTH TEXAS

FIRST REPORTS

Clay County—J. E. Kadane et al's Hamilton 1, sw sec 84, Byers sur, lcn.

Young County—B. C. Gilmore et al's S. Bagley 1, se cor tr, L. W. Ross sur, lcn.

COMPLETIONS

Archer County—Home Oil Co.'s Meade 2, lot 2, W. S. Blount sur A-13, os 957-66 ft, pumped 73 bbls.

Clay County—N. H. Martin & Son's Brannan 1, w part K. McKenzie sur, abnd 1836 ft. T. A. Norwood et al's McGregor 1, ne blk 52, Specht-McCutchen sur, abnd 1351 ft.

Wilbarger County—O. M. Stidham & Son's Watts 1, c ne sw H&TC sec 54, blk 15, abnd 4630 ft.

Young County—Dale Dublin et al's Edwards 1, nw TE&L sec 1479, abnd 955 ft. B. C. Gilmore et al's McDavid 1, Averett sur A-2, abnd 645 ft.

TEXAS PANHANDLE

COMPLETION

Hansford County—I. T. I. O. Company's O'Loughlin 1, nw se se W. C. Ry., sec 2, blk 2, elev 3022 ft, dolomite 3125 ft, abnd (low on markers) 3249 ft.

WEST CENTRAL TEXAS

COMPLETION

Shackelford County—Roeser-Pendleton & Conoco's Cook 1-A-141, sw E. T. Ry. sec 141, abnd 1794 ft.

SOUTH TEXAS

FIRST REPORTS

Duval County—Mudge Oil Co.'s Gruy 1, S. G. Hayes sur 168, ab 1736, 1200-ac lse, 22 mi w Benavides, 1¼ mi w S. Kohler, Pearl Bros., contractor, ru for 2600-ft test.

Guadalupe County—E. D. Hearn's Warren 1, 200-ac tr, E. Smith sur, 2 mi n Lavernia, sw Elm Creek fld, lcn.

Jim Hogg County—Simmons & Schimmel's Gutierrez 1-A, blk 2, sur 144, 6 mi sw Randado, 40 ft s No. 1, junked at 2704 ft (replacement hole), Glen Harroun, contractor, dr 2780 ft on 3000-ft test.

Live Oak County—Sal Vieja Oil Co.'s Riser 2, sur 410, 5000-ac tr, 11½ mi sw of Simmons City, 1100 ft nw of Riser 1, elev 421 ft, 2900-ft test, lcn.

McMullen County—A. Van Dresar's Brown Estate 4, R. H. Brown sur 54, 3400-ac tr, 450 ft s No. 3, 8½ mi w Whitsett, dr 750 ft.

Medina County—Charles P. Cartter's Chandler 2, J. Hoff sur 12, 11 mi w Devine, 1200-ft test, lcn.

Refugio County—Barnsdall's Marberry 4, 568.29-ac lse, Nicholas Fagan sur, 2569 ft w Norsworthy-Fagan producer, lcn.

COMPLETIONS

Duval County—Pocono Dev Co's Adami 1, sur 349, 20 mi w Freer, abnd 1355 ft, contract by Gordon Johnson.

Jim Hogg County—Simmons & Schimmer's Gutierrez 1, blk 2, sur 144, 6 mi sw Randado, junked 2704 ft, core barrel stuck, Glen Harroun contractor.

Medina County—Wilbur D. Bacon, Tr.'s Wurzbach 1, sur 37½, 22 mi w San Antonio, abnd 450 ft, Hardy Roberts, contractor.

Starr County—W. R. Davis, Inc.'s Seyfriedt 1, sur 928, 1646 ft e Yzaguirre, gas and distillate well, 2125 lbs shut-in pres, perf 5234-46 ft, td 6006 ft, new sand. Sun's Mateo-Saenz-State 2, sur 80, 1716 ft n N. Rincon fld, 9.45 bbls oil 8 hrs, 9/64-in ch, 75 lbs tp, 820 lbs cp, perf 4398-4402 ft with 20 shots, no water, td 5266 ft, Sun rig.

Williamson County — H. G. Dickinson's Adamek 2, BBB&C sur, 1500 ft nw 1, abnd 1405 ft.

Zapata County—E. C. Brogan's De Montemayor 1, sur 63, 1½ mi e Escobas fld, abnd 2000 ft. Fidelity Oil & Royalty Co.'s Gopher Trust Est. 1, Jose Vasquez gr, 12 mi w Mirando Valley fld, abnd 2018 ft. Texas Co.'s Jennings 137, Blas Maria Gr, 30 mi s Mirando City, abnd 1531 ft.

WYOMING

FIRST REPORT

Carbon County—Robinson & O'Donnell's State 1, c sw sw ne 16-26n-89w, Bailey Dome, rotary lcn, Objective frontier sands at 3500 ft.

Alberta September Oil Yield Practically Unchanged

The Alberta Petroleum Natural Gas & Conservation Board reported a negligible production decline for Canada's Turner Valley field in September when a daily average of 27,039 barrels was recorded. Daily average yield in August was 27,077 barrels.

Alberta likewise showed a slight decline, September's daily average having been 27,166 barrels as against 27,250 barrels for August.

Turner Valley was accredited with five licenses issued, three new rigs up, 21 active drilling tests, and three completions. Vermilion field had one new rig and three tests drilling, while miscellaneous areas accounted for two licenses, two new rigs, eight active tests, two suspended, and three abandonments.

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MEN IN THE INDUSTRY'S NEWS

DR. EUGENE A. STEPHENSON, head of the petroleum engineering department at at University of Kansas, has been elected chairman of the petroleum division of the American Institute of Mining and Metallurgical Engineers.

Stephenson took his B. S. degree at Adrian College, Michigan, and his Ph. D. at the University of Chicago in 1915. Between 1912 and 1916, he was instructor in economic geology at the University of Chicago. He was named chief geologist for South Penn Oil Company in 1917, and in the following eight years was in charge of geologic petroleum engineering work for the company in Pennsylvania, West Virginia, Kentucky, Texas and Mexico. In 1925 he became associated with Ralph E. Davis, Inc., and during the following five years gained varied experience with engineering problems in the United States, Mexico and Canada. In 1930, Stevenson resigned to become professor of petroleum engineering at the Missouri School of Mines, Rolla, and in 1937 accepted the chair of petroleum engineering for the University of Kansas.

A. B. GROESBECK, vice president and general manager of United Gas Corporation, Houston, died November 30 at Locust Valley, Long Island, New York, after a brief illness. He went to Houston five years ago to take charge of personnel work for the former United Gas Public Company, and was elected vice president and general manager of United Gas Corporation in 1937.

W. F. BUCKLEY, president of Pantepec Oil Company of Venezuela, New York, accompanied by J. L. Barnett, company treasurer, and Warren Smith, general manager at Caracas, left New York for Venezuela last week. They will return by Christmas.

W. S. S. RODGERS, president of The Texas Company, and H. W. Dodge, vice president in charge of sales, last week made an inspection tour of company properties in Texas, Mississippi, Louisiana, Tennessee and Georgia.

JOHN C. RATLIFF, JR., and William H. Waldrop, officials of Comanche Pipe Line Corporation, which operates a crude gathering system in Pecos and Ward Counties, West Texas, will move from Monahans to Midland as result of the transfer of the company's general office to the Petroleum Building in the latter city.

H. H. BRYANT, chief engineer at Humble Pipe Line Company's Kemper station, principal pipe-line terminal for the company in West Texas, has been retired after 20 years of service, and will make his home at Amarillo. He is succeeded by W. A. Gee, who has been chief engineer at the Ballinger, Texas, station. The latter post will be filled by James W. Guynes, assistant chief engineer at Kemper for the past 10 years.

B. A. RAY, West Texas district geologist for Tide Water Associated Oil Company, has been elected president of the Midland Geological Society, succeeding P. D. Moore, consulting geologist and producer. R. L. Bates of The Texas Company and W. Lloyd Haseltine of Magnolia Petroleum Company, were chosen vice-president and secretary-treasurer, respectively.

A. L. BRADDEFORD, Union Producing Company, was elected president of the Shreveport Petroleum Electric Club December 5, succeeding E. M. Smith of the same company, transferred to Houston. Morris Chambers, Louark Producing Company, was elevated to the vice presidency.

TRUE DAVIS, JR., St. Joseph, Missouri, is head of True Oil, Inc., a recently formed corporation with headquarters at Ballinger, Texas. The company will operate a producing property near the Beddo pool, West Texas, that was owned jointly by Davis, E. A. Poe and S. Boyd Johnson, of Kansas City, Missouri.

W. H. HELMERICH, William Broadhurst and H. H. Griffin, all of Tulsa, last week organized White Eagle Drilling Company as an Oklahoma corporation. Helmerich is partner in Helmerich & Payne, Inc.

H. C. BISHOP, Southwest Texas producer with headquarters in New York City, spent several days in Fort Worth while en route to New Mexico, where he recently acquired lease on 463,000 acres, centering upon San Miguel County. Geologists and geophysical crews are surveying the block.

HOWARD MILLER, engineer for Republic Steel Corporation, Massillon, Ohio, discussed "Welding Alloy Steels" before the American Welding Society, Tulsa Section, December 6.

DR. E. BERL, research professor at Carnegie Institute of Technology, Pittsburgh, will address the Tulsa Geological Society on December 9.

R. K. SHIRLEY, who joined Freeport Sulphur Company in 1922 as clerk, last week was elected vice president and treasurer of the company. He started with the company at the age of 23, advancing successively from clerk to auditor, assistant general manager, assistant vice president and comptroller, and treasurer. He was transferred to the company's New York office in 1930.

N. N. JONES, London district engineer for Humble Oil & Refining Company, last week was named chairman of the East Texas Section of the American Institute of Mining & Metallurgical Engineers. Jones, who succeeds W. S. Morris, East Texas Engineering Association, is a 1930 graduate of Louisiana State University, where he obtained a B. S. degree in petroleum engineering. He joined the company immediately on graduation, but worked for Arkansas Natural Gas Company and Arkansas Pipe Line Company for short periods while going to school.

Other officers named were E. L. Rawlins, Union Producing Company, Shreveport, and E. H. Blum, The Atlantic Refining Company, Dallas, vice chairman; M. L. Mayfield, Cities Service Oil Company, Gladewater, secretary-treasurer; E. DeGolyer & McNaughton, Dallas; E. L. Caster, Arkansas Fuel Oil Company, Shreveport, and J. W. Steele, Federal Tender Board, Kilgore, directors for two-year terms, and H. F. Winham, Shell Oil Company, Kilgore; T. W. Johnson, Union Producing Company, Shreveport, and R. H. McLemore, Shell Oil Company, Dallas, directors for one-year terms.

J. BURR GIBBONS, for nearly 10 years vice president and a major stockholder in Rogers, Gano & Gibbons, Inc., Tulsa and Chicago advertising agency, has organized The Gibbons Advertising Agency, Inc., with headquarters in Tulsa. Gibbons is a director and former general manager of the International Petroleum Exposition. Leslie E. Brooks, publicity director of the Tulsa Oil Show and associated with Gibbons for several years, is vice president of the new concern. Mr. Wm. F. Cody is secretary.

A. B. MOREY, treasurer of Gisholt Machine Company, Madison, Wisconsin, for the past 4 years, has been named to a vice presidency. He is succeeded as treasurer by H. J. Homewood, accountant and office manager for the past 10 years. C. K. Swafford, general superintendent of the company, has been elected a director.

J. D. McCLURE, head of the Michigan division land and geological department, Nelson Development Company, has been transferred from Grand Rapids to Midland, Texas. It was reported the company will close its Michigan offices.

W. L. McCLOY, Sohio Producing Company, has been transferred from Allegan, Michigan, to Cleveland, Ohio, and Charles Burke has been shifted from Allegan to Mt. Vernon, Illinois.

E. E. DeBACK, president of the American Recycling Association, will address a joint meeting of the Mid-Continent Section of the American Society of Mechani-

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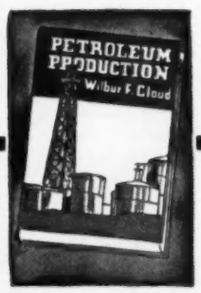

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MEN IN THE INDUSTRY'S NEWS

cal Engineers, and the Engineers Club of Tulsa, December 9 on "High Pressure Distillate Recovery and Recycling Operation."

A. R. ZELT, works manager at the Imperial Works plant of Oil Well Supply Company at Oil City, Pennsylvania, has been named vice president of Oil Well Supply Company and placed in charge of manufactured products. He is succeeded in his former position by E. H. Roos, manager of Wilson-Snyder Manufacturing Corporation, Braddock, Pennsylvania, while T. E. Regan has assumed direction of the latter company.

Zelt, who has been works manager of the Imperial Works Plant for 10 years, will continue his residence in Oil City. He is a native of Washington, Pennsylvania, and received his engineering degree from the Carnegie Institute of Technology, Pittsburgh. Previous to his association with Oil Well Supply Company, Zelt was employed by American Rolling Mill Company.

Roos, a native of Wellsville, New York, has taken up his residence in Oil City. He is a graduate mechanical engineer of Ohio State University. After a short period with Moore Steam Turbine Company, Wellsville, he entered the employ of Wilson-Snyder Manufacturing Corporation 17 years ago, and for the past 10 years has been manager.

Regan, a native of North Dakota and mechanical engineering graduate of North Dakota State College, devoted some time to graduate study and research with Westinghouse Electric & Manufacturing Company. He joined Wilson-Snyder Manufacturing Corporation in 1929 and has been superintendent for the past nine years.

W. S. FARISH, chairman of Standard Oil Company of New Jersey, New York, last week was elected to membership in the National Council of the Episcopal Church.

JOHN DANCHERTSEN, Lane-Wells Company, discussed electrical logging before the Student Section of the American Institute of Mining & Metallurgical Engineers at Louisiana State University November 27.

STANLEY A. THOMPSON, Fort Worth producer, departed by plane for Madoc, Ontario, Canada, upon learing of the sudden death of his mother December 2 in the latter town.

R. W. HARRIS was the principal speaker before the Shawnee (Oklahoma) Geological Society December 2, discussing "Notes on the Simpson."

J. ED BYERS, JR., sales engineer for Black, Sivalls & Bryson, Inc., for the last year in Tulsa, has been transferred to the engineering department at Oklahoma City.

J. SCOTT BLAIR, production department of Sinclair Prairie Oil Company, has been transferred from Midland, Texas, to Tulsa.

GAYLORD G. THOMPSON, former supervisor of application and control of carbide tools for Gisholt Machine Company, Madison, Wisconsin, has been appointed tool engineer for McKenna Metals Company, Latrobe, Pennsylvania. He will engineer installation and use of Kennametal hard-carbide tools and blanks in the North Central district, with headquarters in the Talcot Building, Rockford, Illinois.

C. A. CHILDERS, former engineer with Happy Belting Company, Tulsa, and more recently associated with The National Supply Company at Seminole, Oklahoma, has joined the engineering staff of B. F. Sturtevant Company, Boston. Childers will act as a contact man in the engine cooler department, and will establish a district office at a later date.

DR. L. HORWITZ, geophysicist with Subterrex, Houston, will read a paper before the Houston Geological Society, December 12, on "Geochemical Well Logging." The meeting will be held at 12:15 p.m. at the Lamar Hotel.

JOHN BORELLI, engineer for Oklahoma Natural Gas Company, has been elected vice president of the Tulsa County chapter of the Reserve Officers Association. Wm. E. Short, engineer for Frick-Reid Supply Corporation, was reelected secretary-treasurer.

AUSTIN ALLEN, JR., 33, chief engineer in the production department of Phillips Petroleum Company, Bartlesville, died November 30 after a brief illness. He was a University of Missouri graduate engineer, and had served 10 years with the firm.

M. E. MONTROSE, general sales manager for Lane-Well Company, has returned to his Los Angeles headquarters after a six-week visit to the company's Mid-Continent and Gulf Coast divisions and the American Petroleum Institute meeting in Chicago.

EARL P. HALLIBURTON, president of Halliburton Oil Well Cementing Company, Duncan, Oklahoma, spoke at a round-table discussion before the Tulsa Chamber of Commerce on November 29 on "The American Way of Living."

HARRY CONNELLY, president of Peak Drilling Company, Wichita, and R. W. Ford, drilling superintendent, were in Parco, Wyoming, recently to arrange for drilling wells for Sinclair-Wyoming Oil Company.

DICK GRAY, sales representative for Fred E. Cooper, Tulsa, is now located at Mt. Carmel, Illinois.

JACK GODDARD, land department of Sinclair-Prairie Oil Company at Ardmore, Oklahoma, has been temporarily transferred to Southwestern Nebraska.

J. M. RICH, geologist for the Carter Oil Company, has been transferred to Meridian from Vicksburg, Mississippi.

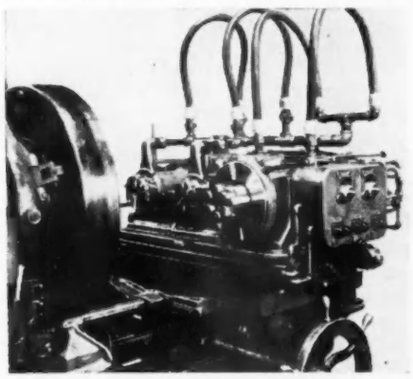
NOTES FOR THE Equipment Buyer and User

Recessing, Boring and Tapping Machine

LANDIS MACHINE COMPANY

A recessing, boring and tapping machine, designed to completely machine the internal or tapped end of integral joint type casing at one chucking, has been announced by Landis Machine Company, Waynesboro, Pennsylvania.

Designed similarly to the company's mill-type receding chaser pipe threading



Recessing, Boring and Tapping Machine

and cutting-off machine, the conventional carriage and receding chaser pipe-threading die head are replaced with a special carriage on which is mounted the recessing, boring and tapping tools. Three tool slides are mounted on a cross slide which may be indexed to bring any one of the tool slides into working position. One tool slide finishes the recess, faces the end of the casing, and chamfers three surfaces in the end of the casing. The chamfers are located, one inside and one outside at the extreme end of the casing, and one at the inside end of the recessed surface.

A second tool slide finishes the taper bore preparatory to tapping, using a receding action to the cutters for accurately producing the taper. Upon completion of the boring operation, cutters are collapsed to permit withdrawing of the tools without scoring or marring the finished bore surface. The third tool slide is a special receding chaser collapsible tap arranged to chase the internal threads using a leadscrew mechanism built into the machine. It is designed to provide the accuracy in thread lead required by standards of the American Petroleum Institute.

Movements of the tool slides and the cross slide are hydraulically controlled with the circuits arranged with interlocks to provide correct operating sequences. The cross slide is hydraulically locked into position on the carriage when any one of the tool slides is in action. Operating controls for the hydraulic cycle are centralized on a panel at the front of the machine to provide control from a position permitting observation of the tools in action during the machining cycle.

Casing to be machined is positioned in the spindle against the arm of the pneumatically operated work stop, and is then gripped by the front and rear pneumatic chucks mounted on the spindle of the machine. The recess tool slide is then advanced towards the casing and automatically brought to a predetermined rate of feed just before the tools enter into the work. At the completion of the recessing, chamfering and facing operation, the recessing tool slide is retracted from the casing, and the cross slide is then indexed against the mid-position stop, thus bringing the boring tool slide into the working position.

Boring tool slides are advanced towards the work and are automatically reduced to a predetermined rate of feed as the tools enter the cut. At the end of the cut, tools collapse and the tool slide then is retracted from the end of the casing. Boring tools automatically reset from their collapsed position at the end of the return stroke so as to be ready for subsequent boring operations. The cross slide is then moved against a third stop which brings the receding chaser collapsible tap into operating position.

The casing is then tapped, using a leadscrew to provide a positive, accurate feed. After completion of the thread, the carriage and cross slide are returned to the original starting positions, and the casing is then removed from the machine.

Water Coolers

Condenser Service & Engineering Company, 310 Twelfth Street, Hoboken, New Jersey, has issued Bulletin W-100 describing its jacket water coolers. Construction features are discussed and illustrated. Tables give specifications of individual units.

Rotary

OIL WELL SUPPLY COMPANY

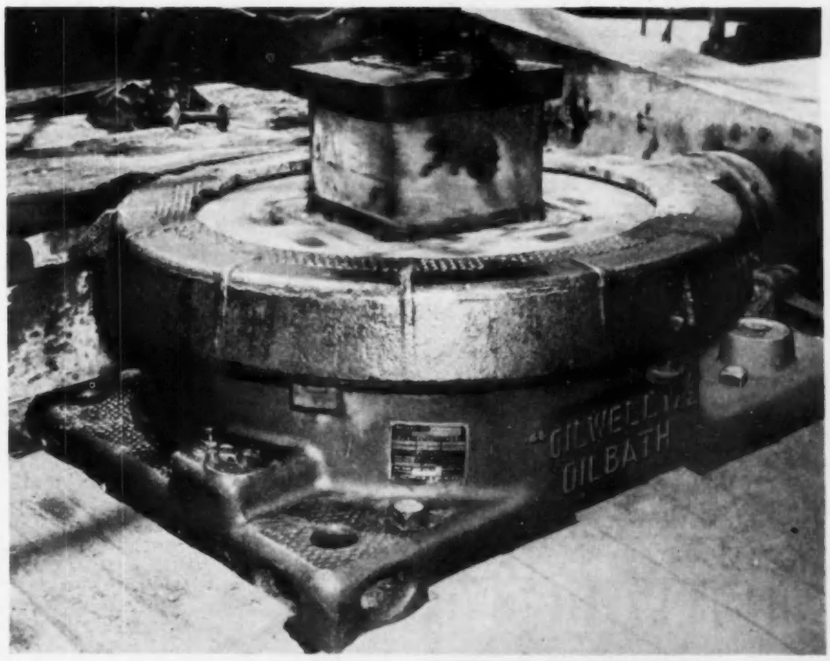
A 17½-inch oilbath rotary, designed for speeds up to 400 revolutions per minute and a maximum drilling depth of 7500 feet, has been announced by Oil Well Supply Company, Dallas.

Features include a heat-treated forged-steel, spiral-bevel gear train with surface-hardened pinion. Spiral-bevel design is to result in smooth and quiet operation in high-speed service. The main bearing is of self-centering, high-speed, ball-and-race design with high-precision, large-diameter steel balls and surface - hardened, heat - treated and ground steel races. Heavy-duty, bronze radial and hold-down bearing is fitted low in the base to facilitate steadying effect and wear-resistance.

Circulating oilbath lubrication is provided for the gear train, main bearing, and hold-down bearing, which operate in a complete enclosure with a labyrinth seal. The oil reservoir extends completely around the table. The hold-down ring forms a cylindrical container with the top overlapping the oil-retainer ring, to provide continuous circulation and complete return of the lubricant.

The pinion shaft is a high-carbon heat-treated steel forging. It rotates in a double-row, heavy-duty tapered roller bearing and a heavy-duty straight roller bearing, both mounted in separate, cylindrical, steel housings supported in circular bearing supports integral with the base to provide perfect alignment at all times. Pinion shaft bearings are lubricated through Alemite connections, and the housings are provided with oil seals and pressure-relief fittings.

Skids, table enclosure, oil reservoir,



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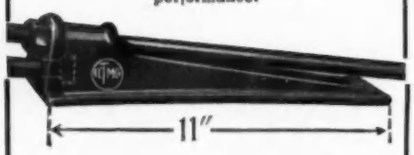

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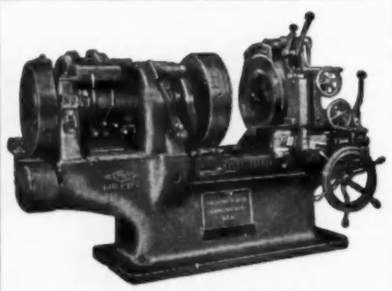
You need quality fasteners . . . quality demands "TECKTONIUS" Fasteners

Write for Price List and Discounts

E. C. TECKTONIUS MFG. CO.
Racine, Wis.



New Landis 4¾ Receding Chaser Pipe Threading Machine

COMPLETE LINES

Machine Tools—Metal Working Machinery—Bolt and Pipe Threading Machines—Electric Arc Spot and Butt Welders—Hand Power and Electric Traveling Cranes—Foundry and Forge Shop Equipment.

C. J. HARTER, Machinery
4000 Clay, Houston, Texas
Fairfax 1466

TIN END ENVELOPES
for Sand Samples

Made of strong kraft paper, tightly sealed to eliminate leaks. Top end folds over with easy twist and holds contents securely. Most economical for sending and filing of sand samples. Phone, write or wire for our low prices.

GULF ENVELOPE CO.
617 BROOKS Fx. 4171
HOUSTON, TEXAS

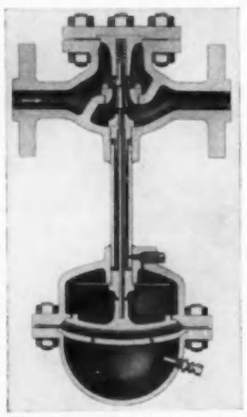
NOTES FOR THE Equipment Buyer and User

and pinion-shaft bearing supports are integral with the one-piece, cast-steel base. The table top is flat and low, and is covered at its circumference by a reinforced steel guard with diamond-pattern safety tread and slopping sides designed as a safety feature and to prevent slinging of mud onto the derrick floor.

Pressure Reducer

FOSTER ENGINEERING COMPANY

Two pressure-reducing regulators for steam, hot liquids and hot gases, rated for initial pressures up to 2500 pounds per square inch, delivery pressures up to 1200 pounds per square inch, and temperatures up to 1000° F., has been announced by Foster Engineering Company, 109 Monroe Street, Newark, New Jersey. Type 39-Q1 is single-seated, and Type 39-Q2 is double-seated.



Foster Pressure Reducing Regulator

The regulators employ no operating springs or stuffing box, obtaining loading by air to insure constant regulation. A constant air load in the dome is designed to provide accurate and sensitive regulation. Single-seated styles are provided for dead-end service, shutting in direction of flow for tight closure, and double-seated models are offered for continuous-flow services. Parts are readily accessible, and renewable without removing body from line. Through-bolted construction of diaphragm chamber simplifies inspection, and no special tools are required.

Pressure regulated by the valve can be adjusted at a distant control point located by installation of an extension loading tubing for hand pumping, or by a pilot control valve where air supply is available.

Pipe Fittings

Taylor Forge & Pipe Works, Box 485, Chicago, has published a new catalog on its line of seamless steel pipe fittings for welding and forged steel flanges. It includes within its 216 pages technical data on design, pressure and temperature ratings, flange bolting, new test analyses, and accepted standards. Prices and dimensions, in a complete range of sizes and for all services, are shown for every fitting in the line.

Gas Engine

CATERPILLAR TRACTOR COMPANY

Three models of heavy-duty natural gas engines have been announced by Caterpillar Tractor Company, Peoria, Illinois.

The engines are built in 4- and 6-cylinder styles. Model 4600G is a 6-cylinder unit, and Model 4400G is a 4-cylinder engine, both with a bore of 4¾ inches and a 5½-inch stroke, developing 74 and 48 horsepower, respectively, at 1600 maximum governed revolutions per minute. Model 3400G is a 4-cylinder unit with a bore and stroke of

Standco
NO-SMOKE

STANDCO BRAKE LINING

for the easiest brake known. It "feeds off" evenly. Standco never scores brake rims. See page 2100, Composite Catalog.

Standco Brake Lining Co.
HOUSTON

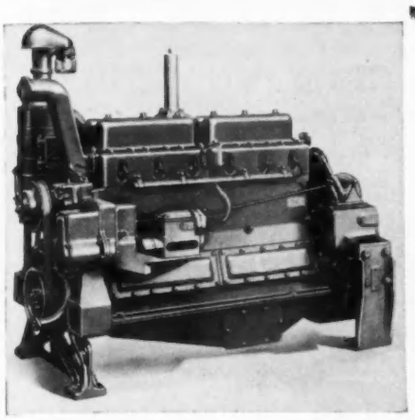
GET ACCURATE RESULTS
Quickly . . Easily . . with
CURTIN CENTRIFUGES

No. 3480 . . . 100 c.c. machine. Cranks and heads interchangeable with 15 c.c. machines.

You can maintain your required speed for the period of the test with much less effort. Curtin Centrifuges, proven world-wide, are heavy duty, rigidly constructed, and extremely simple in design. Illustrated bulletin, giving full details, available upon request.

W·H·CURTIN & CO. Inc
HOUSTON U·S·A TEXAS

NOTES FOR THE Equipment Buyer and User



Caterpillar Natural Gas Engine

3¾ x 5 inches, developing 34 horsepower at 1650 revolutions per minute.

Valve-in-head engines are designed for heavy-duty work with a minimum of maintenance. Heat-resistant alloy valve seat inserts are provided, as are crankshafts with hardened journals. Main bearing surface on the 4600G is 118 square inches; on the 4400G, 89.5 square inches, and on the 3400G, 80.3 square inches.

Lubricating system provides filtering and pressure lubrication to all working engine parts, and there is an upper-cylinder lubricator to provide extra valve lubrication for use with dry natural gas fuel.

A combination gas-gasoline carburetor is standard equipment, and though the engine will burn gasoline for short periods, such as for starting purposes when gas is not available, the fuel system is set for natural gas. The system includes a filter to clean the gas, with a regulator to handle gas pressures as high as 150 pounds at the supply. A manually operated manifold heat control is incorporated.

The engines are available fan-to-flywheel or as a complete power unit package with enclosed clutch and radiator.

Pumps

Allis-Chalmers Manufacturing Company, Milwaukee, has issued Bulletin B-6140 on the company's new all-in-one Electrifugal pumps for 1- to 10-horsepower and for heads up to 160 feet. It illustrates and describes the unit construction, incorporating either special splash-proof motors, totally enclosed, fan cooled motors, or explosion-proof, fan cooled motors, as may be required.

Rotaries

The International Derrick & Equipment Company, Beaumont, Texas, has issued Bulletin 1725-23-275 describing its line of rotaries. It gives specifications and engineering drawings of the machines, described as streamlined, and discusses important features. Three sizes are available, 17¼, 23- and 27½-inch, and in high-speed and standard styles. The bulletin includes a parts list, and gives accessories available.

Los Angeles Nomads Hold Classes for Spanish

The Los Angeles Chapter of Nomads completed arrangements at its November meeting for a Spanish Class, to meet weekly in the auditorium of Baker Oil Tools, Inc. The first lesson was held last week.

The December meeting, with date still to be announced, will be held at a country club and will be preceded by a handicap golf tournament.

Guests attending the November meeting included: Phil Aswerus, formerly with Standard Oil Company of California in Egypt; Erno Bonebakker, of B.P.M.; John C. Bergman, with V.O.C., Venezuela; Mike Bush, of Bahrein Petroleum; J. S. Campbell, of U.B.O.T., Trinidad; J. W. Cune, of V.O.C., Venezuela; A. T. Gano, of Cia de Patroleo, Shell de Colombia, Colombia; Clau de H. Goff, of U.B.O.T., Trinidad; A. J. deJager, of B.P.M., Borneo; Harvey M. Lytel, of Socony-Vacuum, Egypt; Robert McKean, of Caribbean Petroleum, Venezuela; Paulo B. Sardinha, of Drilling & Exploration Company, Brazil; Clyde Speer, of B.O.C., Venezuela, and E. L. M. Trafford, of B.P.M.

Slide Rule

Keuffel & Esser Company, Hoboken, New Jersey, has issued a 24-page booklet on "How to Choose a Slide Rule," explaining the difference between various types of slide rules available.

Motor Control

Electric Machinery Manufacturing Company, Minneapolis, Minnesota, has issued Bulletin 159 giving eight pages describing polarized field frequency automatic con-

FAR MORE THAN
A Thread Dope!

RECTORSEAL is not a petroleum base product, and is not competitive to those products made by oil companies as a thread protector. Major oil companies, who manufacture their own pipe thread compounds, are the largest buyers and users of RECTORSEAL . . . because RECTORSEAL goes beyond the service rendered by petroleum base products. It forms a permanently leakproof seal impervious to oils, gases, salt water or dilute acids . . . a plastic, elastic seal which permits easy breakout of joints.

Your SUPPLY COMPANY has RECTORSEAL in container sizes to meet your needs. Be sure you're getting RECTORSEAL . . . not just a "seal."

RECTORSEAL
THE POSITIVE LEAK PREVENTER

QUALITY ELECTRIC STEEL CASTINGS

Do you know that DEDMAN has a personnel of STEEL Specialists who are experienced in making

ELECTRIC STEEL CASTINGS

. . . that meet the manufacturers' most exacting requirements?

DEDMAN
FOUNDRY & MACHINE CO.
HOUSTON, TEXAS

"You need quality Castings . . . quality demands DEDMAN Castings"

NOTES FOR THE Equipment Buyer and User

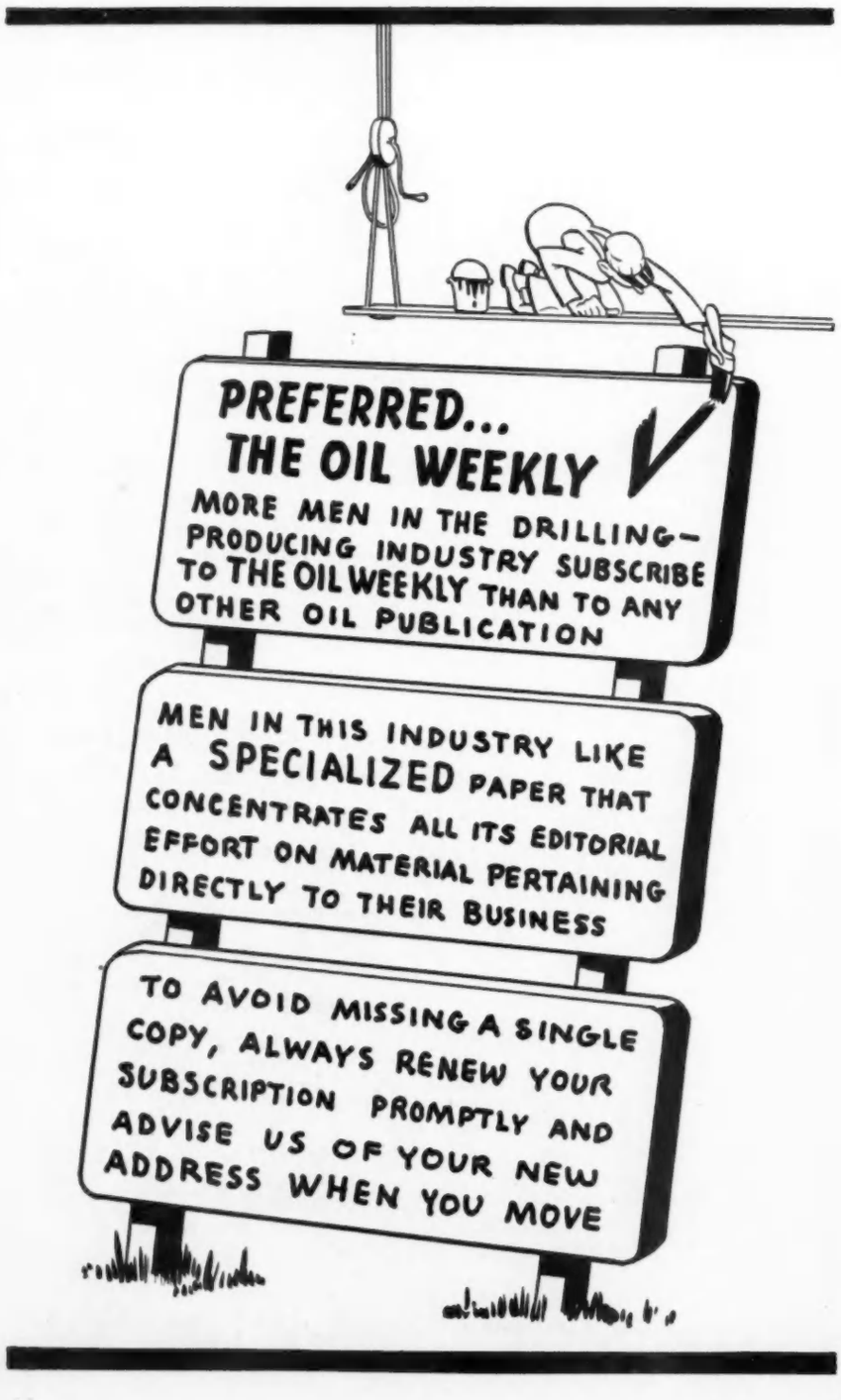
trol for synchronous motors. Function and construction of the control parts are explained, and connections of a typical control are illustrated.

Pipe Tools

Beaver Pipe Tools, Inc., Warren, Ohio, has issued a bulletin briefly describing its line of tools and quoting statements of users concerning their operation.

Rust Protection

The Flood Company, 6217 Carnegie Avenue, Cleveland, has issued a bulletin describing properties of Penetrol, designed as a base for paint that may be applied upon a rust surface. It is described as a blend of natural oils containing no volatiles, and is also intended as a reinforcing reducer for paints and a vehicle for aluminum pigments.


PREFERRED... THE OIL WEEKLY
MORE MEN IN THE DRILLING-PRODUCING INDUSTRY SUBSCRIBE TO THE OIL WEEKLY THAN TO ANY OTHER OIL PUBLICATION
MEN IN THIS INDUSTRY LIKE A SPECIALIZED PAPER THAT CONCENTRATES ALL ITS EDITORIAL EFFORT ON MATERIAL PERTAINING DIRECTLY TO THEIR BUSINESS
TO AVOID MISSING A SINGLE COPY, ALWAYS RENEW YOUR SUBSCRIPTION PROMPTLY AND ADVISE US OF YOUR NEW ADDRESS WHEN YOU MOVE

Controllers

American Schaeffer & Budenberg Instrument Division of Manning, Maxwell & Moore, Inc., Bridgeport, Connecticut, has announced a new controller catalog of 84 pages. It covers the company's complete line of self-operated controllers, combined temperature controllers with indicators, pressure controllers, wide-range indicating controllers, wide-range non-indicating controllers, controlographs, and diaphragm motor valves. Equipment descriptions are supplemented by general information on controllers.

Electronic Devices

General Electric Company, Schenectady, New York, has issued a 20-page booklet on "Electronic Devices for Industry," briefly listing some of the more important vacuum-tube apparatus and describing its application and method of operation. It deals with photo-tubes, DC motor control, recording spectrophotometer, exposure meters, pyrometers, gas-discharge and high-vacuum electronic tubes, the Reactrol system, automatic arc-welding equipment, ignition rectifiers, resistance welding, and battery-charging equipment.

Condensers, Heat Exchangers

The American Brass Company, Waterbury, Connecticut, has issued the fifth edition of Bulletin B-2 giving 60 pages of data on condenser and heat-exchanger tubes and plates. It includes discussions on corrosion factors; tube and plate alloys; methods of manufacture; applications in oil refining, stationary steam plants and ships; installation data, tentative specifications of the American Society for Testing Materials, and an appendix covering physical properties, weights, carrying capacities, tables on temperature conversion, steam pressures, and the Mollier diagram.

Roller Chain

The Whitney Chain & Manufacturing Company, Hartford, Connecticut, has issued Catalog V-150 listing roller chains and sprockets available as stock items at central distribution points. Numbering 20 pages, it gives information, in condensed form, helpful in selection of stock drives. Location of sales and engineering offices and distributors is given.

Gas Cutting

Air Reduction, 40 East 42 Street, New York, has issued an 8-page illustrated bulletin on its No. 4 Radiagraph, a portable motor-driven gas-cutting machine. The equipment is designed to make straight-line cuts, for cutting arcs or complete circles, and for cutting irregular shapes involving long sweeping curves, either simple or compound. Included is a description of flame-hardening and plate-edge preparation operations that may be accomplished by using special equipment.

Gas Cutting Machines

Air Reduction, 40 East 42 Street, New York, has issued a 24-page bulletin covering four gas cutting machines designed to cut an unlimited variety of shapes from steel plate, slabs, billets and forgings. The machines are the No. 6-A Oxygraph and the Nos. 10, 40 and 41 Travographs. The first section of the bulletin pictures suggested applications, with the second half devoted to individual treatment of each of the machines.

Squeaks from the Bull Wheel

Checked

A traveler was walking along a country road when he came across an old man. Addressing him, he asked how long it would take him to get to the next village. But the man went on with his work, neither speaking nor looking up. The traveler went on his way.

He had not gone far when he heard a call: "Hey, mister! Come back!"

The traveler returned, when the old man said: "It'll take you twenty minutes."

"Why did you not tell me that when I asked you?" said the traveler.

"How did I know how fast you was going to walk?"

Just Like Dad's

"Well, my little man, how do you wish to have your hair cut?"

"I'd like it cut just like my Daddy's and please don't forget to leave that little round hole on the top where his head comes through."

This Changing World

Any fashions in the paper, papa?

Yes; but they are of no use to you, dear. It's yesterday's paper.

Wasted Effort

"Darling, I'm sorry I've been so mean to you lately."

"Well, this is a fine time to be sorry. I'm dead broke."

Playing Safe

"Can't you see the sign 'No Smoking?'"

"Sure mate, that's plain enough. But there are so many dippy signs here. One says, 'Wear Nemo Corsets.' So I ain't payin' attention to any of them."

Tears or Tiers?

I wish I could think up a big, strong situation that would fill the audience with tears.

I'm looking for one that will fill the tiers with audience.

Appreciation

Before Calvin Coolidge left for the White House his Vermont neighbors decided to recognize his devotion to the old farm by giving him a handmade rake.

The orator who presented the rake dwelt on the qualities of the hickory wood from which he said it was made.

"Hickory," he said, "like the President is sturdy, strong, resilient, unbroken," and so on, and so on. Then he handed the rake to Mr. Coolidge.

The President scrutinized it carefully, and made his address in a single word.

"Ash."

Fair Warning

The schoolmaster was angry with the doctor's small son. "I will certainly have to ask your father to come and see me," he remarked.

"You'd better not," said the boy; "he charges five dollars a visit."

How True!

What is the difference between capital and labor?

Well, son, the money you lend represents capital—and getting it back represents labor.

Asking Too Much

Friend—Weren't you nervous when you took that trip by airplane during your campaign tour?

Candidate—Well, I wasn't nervous, but I'll admit I was glad I didn't have to get out on the back platform and make a speech.

Coffee Drinkers

There is the story of a controversy which took place in Sweden in the Eighteenth Century. At that time tea and coffee had only recently been introduced into Scandinavia and there were some bitter words going about concerning the possible injurious effects of the two beverages. Finally, King Gustav III decided to settle the matter once for all. Two brothers—identical twins—had been condemned to death for murder, so Gustav commuted their sentence to life imprisonment on the condition that one be given a large daily dose of tea and the other of coffee.

But in their cells, the brothers lived on and on. Finally, at the age of 83, one of them—the tea drinker—died. Perhaps that is the reason that Sweden up to the beginning of the war, was among the leading countries in the consumption of coffee.

Not Like Sir Walter

A young bride stamped her foot and exclaimed to her partner: "Oh, the days of chivalry are past!" "Now, now, now! What's the matter?" asked her husband soothingly. "Matter!" she replied. "Sir Walter Raleigh laid his cloak down on the ground for Queen Elizabeth to walk over; but you disliked it just because poor dear mother sat on your hat and crushed it."

Delicate Dun

One day not long ago, the bookkeeper for the *Cariboo Observer*, a Canadian newspaper, nearly went nutty counting all the checks and cash that poured into his office. He had to work far into the night to take care of the sudden flood of money that came from musty old accounts overdue for months.

The next morning he went up to the editor's office to see if the millennium had come. Nothing of the kind. The editor had sent out this dunning letter the day before:

"It is reported that one of the fastidious newly married ladies of the town kneads bread with her gloves on. This incident may be somewhat peculiar, but there are others. The editor of this paper needs bread with his shoes on; he needs bread with his pants on, and unless some of the delinquent subscribers of this old rag of freedom pony up before long, he will need bread without a damned thing on, and Cariboo is no Garden of Eden in the wintertime."

Don't Gamble on Results

Clean-Out WITH A MILLER

The accumulation of sand and sediment in your wells make them poor producers. Clean-Out quickly at small cost with a MILLER—*the Sand Pump in world-wide use!*

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY DUTY Sand Pumps.

INTERCHANGEABLE BOTTOMS

To Meet Every Condition

● BAILER BOTTOM

With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

● SAND BOTTOM

Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM

Used for cutting the sand loose.

● CHISEL BOTTOM

(In Pump)

With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Pages 1672-73 COMPOSITE CATALOG

MILLER Sand Pump Co.

PATENTED NO. 1370300 NO. 1523606 NO. 1707290 NO. 1944628 NO. 1944629 NO. 2056677

General Offices and Factory:

OKLAHOMA CITY, OKLAHOMA

1524 S. E. 29th P. O. Box 4516 Tel: 7-6884

Export Department:

Suite 4616—30 Rockefeller Plaza, New York

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FOR SALE BY SUPPLY STORES EVERYWHERE

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*Union Wire Rope Corp.	—
*Unit Rig and Equipment Co.	—
*United States Rubber Co.	—
United States Steel Corp.	23 and 35
*Universal Atlas Cement Co.	—
*Universal Engineering Co.	—

W	
P. A. Ward & Co.	—
Warner & Swasey Co.	—
*Waukesha Motor Co.	—
*Well Machinery & Supply Co.	—
Well Surveys, Inc.	—
Western Electric Co.	—
*Westinghouse Electric & Manufacturing Co.	—
*Wheeling Machine Products Co.	—
*The Wheland Co.	—
White Plaza Hotel	70
Wichita Engineering Co.	—
*Wickwire Spencer Steel Co.	28
*J. H. Williams & Co.	—
*Wilson Manufacturing Co.	—
*Wilson Supply Co.	—
*Wisconsin Motor Corp.	—
Witte Engine Works	68
*Worthington Pump & Machinery Corp.	—
Wyatt Metal & Boiler Works	—

Y	
Youngstown Sheet & Tube Co.	17